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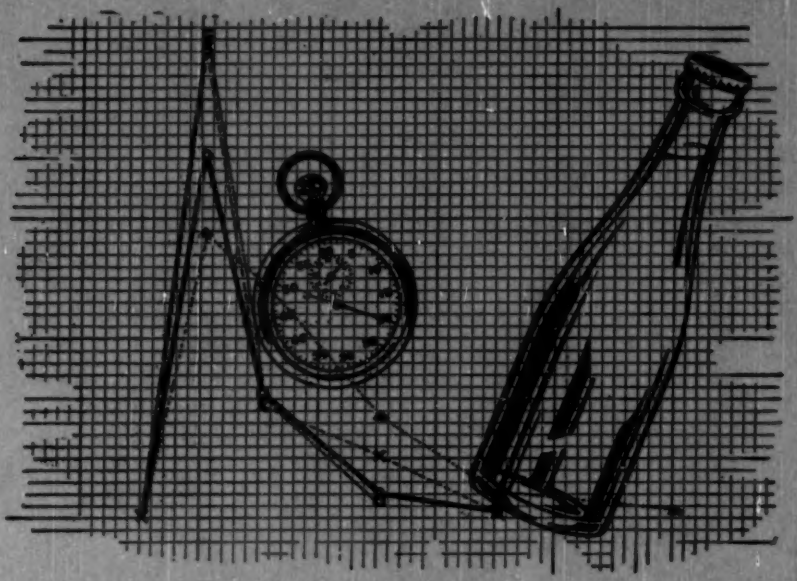

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In their consideration of cariogenic oral conditions, proponents of the carbohydrate view of the caries problem frequently fail to contrast the effect of carbohydrates in solid or semi-solid form, which require mastication, with that of liquids which merely pass through the mouth, such as sweetened beverages.

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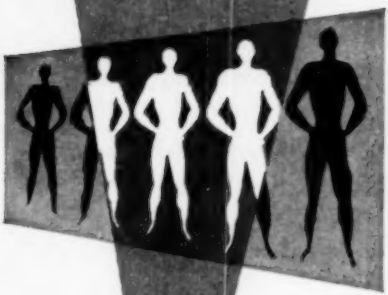

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American Journal of Public Health
and THE NATION'S HEALTH

Official Monthly Publication of the American Public Health Association

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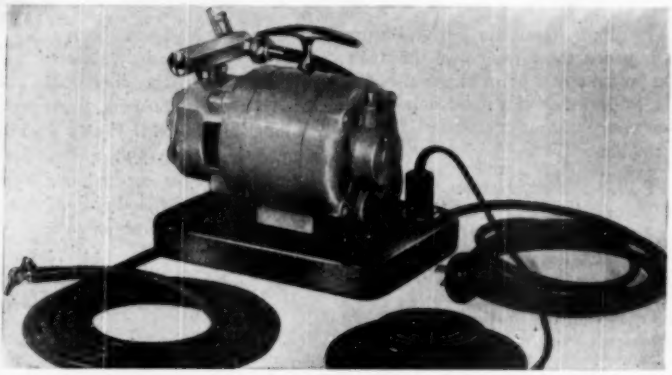

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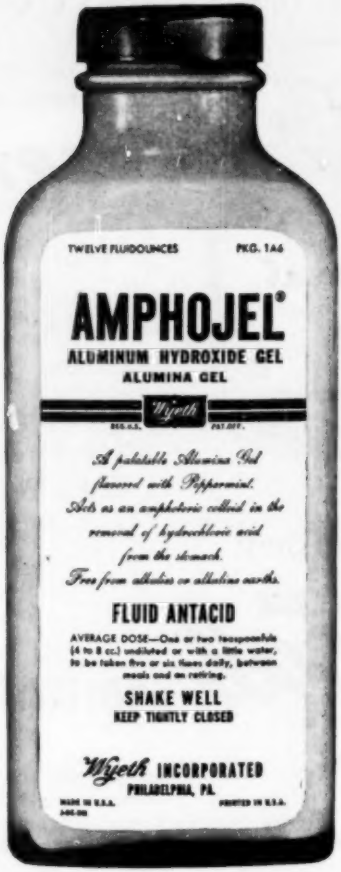

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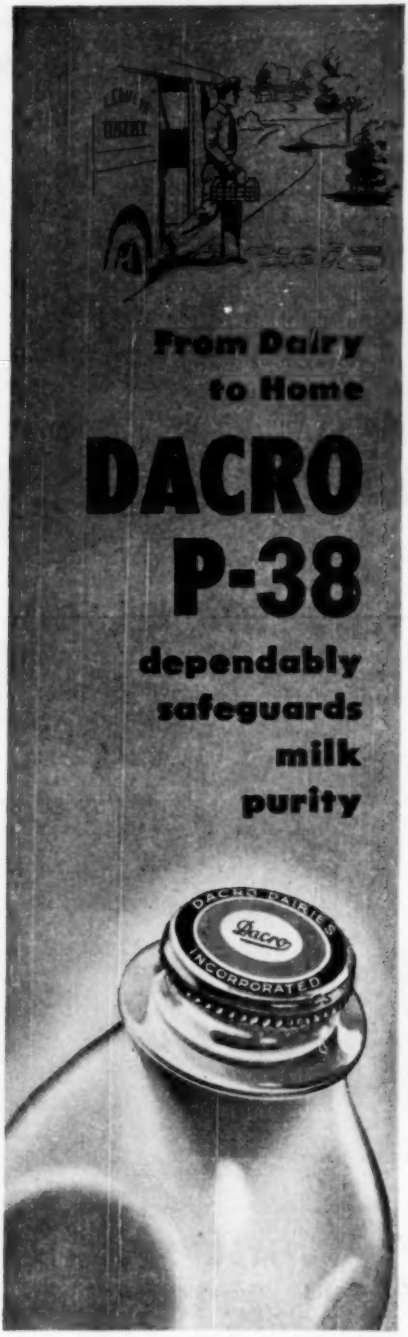

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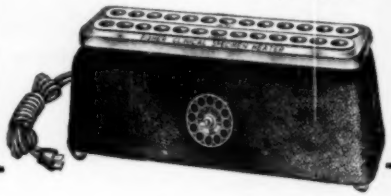

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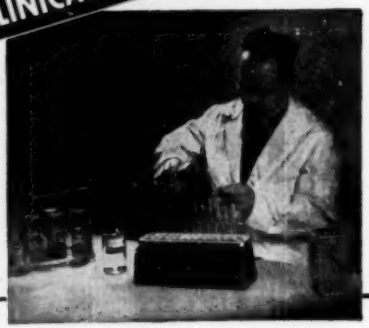

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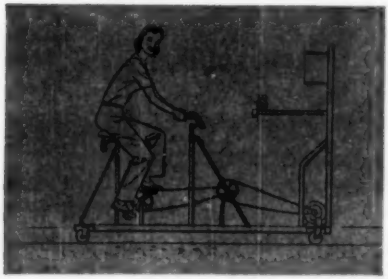
1. When "no breakfast" was the morning practice, maximum work output showed a significant *decrease* at the pre-noon hour.



2. Habituation to coffee only induced a similar *decrease* in maximum work output.
3. When habituation to the 400 calorie breakfast was attained after the coffee only period, a significant *increase* over the findings in the coffee only period in maximum work output resulted.

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Psychological Factors in Atomic Warfare*

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MANY of the ideas I want to discuss with you today are matters of opinion—and they are, in some cases, ideas on which the diversity of opinion seems to be a function of the number of people who have ideas. I want to talk to you about my ideas with the hope of stimulating thought and more careful consideration of a most important problem.

Please do not interpret any of my remarks as indicating anything less than the fullest respect for the phenomenon of radioactivity as a diabolical instrument of death and injury to man. I only want to point out that we are justified in taking a rather hardboiled attitude toward this subject. Since we have no choice but to live with it, we must keep it in proper perspective.

Since the advent of nuclear explosives in the so-called atom bomb, with its attendant ionizing radiations in massive amounts, unfortunate psychological reactions have developed in the minds of both the military and civilians. This reaction is one of intense fear and is directed against forces that cannot be seen, felt, or otherwise sensed. I have observed the reactions of the military, who were not acquainted with the technical details, on two missions, Bikini and Eniwetok, and the fear reaction of the uninitiated is appalling. The fear reaction of the uninitiated civilian is ever evident. It is of such magnitude that it could well interfere with an important military mission in time of war.

Whenever living cells are affected by ionizing radiation, it is detrimental. It must be realized that nature has been always bombarding the populations of the world with ionizing radiation since the formation of the universe—by constant exposure to cosmic radiations and to radiations emanating from natural radioactive elements—such as radon and thoron.

This kind of injury must be considered, not as standing by itself, but in connection with the total situation, i.e., weighed in relation to the objectives in view, both in regard to their importance

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under the circumstances and their probability of attainment. Unless we can thus integrate it with our whole philosophy of national defense, the atom bomb can prove a liability rather than an asset.

With the publicity emanating from the atom bomb, the term "Roentgen" has become a household word. A Roentgen is a term of physical measurement such as the "centimeter" or the "gram." It is based upon one of the physical effects of certain types of electromagnetic waves that cannot be measured with a yardstick. The large step from such a physical measurement to expected biological behavior in human beings is based upon experimentation on lower animals, empirical observations, and clinical investigations. There are, however, many blank spaces in our experience and many superstitions have been introduced. Since it is impossible to stipulate all conditions of experimentation and observation in most of the articles written about radiation for lay consumption, an idea has evolved in many minds that any and all radiation exposure will cause immediate and mysterious injury or death. This reasoning is fallacious, but it is also plausible and has become contagious.

The problem of radiation injury is not one which can be easily simplified. In fact, over-simplification of this danger may be the cause of a situation such as we are combating at this time. It seems desirable to explore radiation hazards more fully in relation to other hazards which are considered more common and acceptable.

The permissible radiation dose is 0.2 or 0.1 r per day, or 0.3 r per week according to your authority. It should no longer be called the "tolerance dose," for no amount of radiation should be tolerated without good reason. One is willing however to name a dose so small that a person might be exposed to it every day of his life and suffer no observable injury or shortening of his life span.

When one is dealing with radiation technicians or with industrial workers who are exposed to this hazard daily in their life's work, he can easily see how the maintenance of exposures at or below this level is a very desirable thing. Day-by-day contact with radiation or radioactive materials demands that a low limit of exposure be adhered to, if one is to avoid late complications of such chronic trauma. Similar occupational hazards exist in all branches of production—noxious gases and dust to the coal miner, the steel worker, and the chemical worker. It has been known for years that, if a miner is subjected to small amounts of dust containing silica, he eventually will develop silicosis, frequently complicated by tuberculosis, and perhaps leading to a fatal termination. For this reason, methods of counting and analyzing dust have been perfected, and forced ventilation systems have been established to minimize the danger. This does not mean that if an individual makes a one day visit to a mine and inhales 100 times the daily minimal allowance for miners that he will develop silicosis. This tolerance limit has nothing in its definition which refers to acute exposure. Neither is the 0.1 r per day tolerance limit related to acute exposure in radiation.

The total body dose of radiation received as an acute exposure is known from therapeutic experience to vary with the patient. This, and the lethal dose for man, have not received the same attention from rule-making bodies that the "permissible dose" has had. We may take 450 r as the median lethal dose.

Going further down the scale, one may consider a limit of 200 r, which may cause radiation sickness in 50 per cent of human subjects when delivered, as an acute dose of total body radiation. Some subjects may be quite sensitive to radiation and others quite resist-

ant, so it is difficult to calculate the precise effects to be expected.

It is not unusual to subject a patient to multiple x-rays of the skull, spine, long bones, gastrointestinal tract, kidneys, sinuses, etc., in a relatively short space of time, thus subjecting him to a dose of radiation which may well approach 25 r. These procedures are not used without purpose and the benefit from the information gained outweighs all fear as to the possible injury from radiation. Full body radiation in doses of the order of 25 r to 100 r have been given to patients for treatment of various conditions. Again, these exposures are prescribed for a purpose which outweighs the fear of radiation injury.

It is not the purpose of this article to underestimate or understate the radiation hazard. But from a military standpoint the physical danger must be evaluated against the objective to be gained.

War is fought with the knowledge that men will be killed. Campaigns are planned with expectation of losing so many thousand men. If you call these "acceptable hazards" then it is obviously not wise to treat radiation hazards very differently. If acceptance of radiation hazard will lessen the other military hazards, then that is what one should accept. This can only be done, however, if the attitude of the men exposed is psychologically similar toward the two types of hazard. If they are going to be as much terrified by the knowledge that a recent atom bomb explosion has contaminated the ground they are walking over as they would be by seeing one in ten of their bodies fall by machine gun fire, one cannot apply the "ideal" solution. What is dominant for actual percentage survival is the resultant of all the actual hazards. But for battle discipline and military effectiveness the dominant measure is not the hazard itself but the soldiers' estimation of the hazard.

Men at war suffer many hazards, acute and chronic, besides bullets. Malaria, venereal disease, exposure to cold and wet, starvation, etc. Some of these, e.g., VD, are under-evalued by the doughboy. Others, e.g., filariasis, are grossly over-evalued. At present radiation is perhaps over-evalued worst of all, partly due to our great care in Operations Crossroads. That operation was conducted at the peacetime level of safety to personnel. Unless we had openly proclaimed immediate danger of war, the military level for hazardous training programs, such as we had actually adopted during the war, using live grenades and live ammunition in the machine guns, was not tolerable at Bikini. It must be emphasized that acceptable hazards in a peacetime operation, cannot be adhered to in wartime.

Psychological training for the military level of acceptable radiation hazard is possible and should be prosecuted, even though operational field training does not permit this to be accomplished at the present time.

We hear much about sterility as a result of exposure to ionizing radiation. It must be borne in mind that sterility results only from a large dose of acute radiation, or from smaller doses over a long period of time—a matter of years. Sterility also results from other accepted hazards encountered in war—venereal disease is one of the foremost causes of sterility. We are aware of hundreds of paraplegics resulting from spinal fractures, gun shot wounds of the cord, etc., during the last war who are not only sterile but impotent. Leukemia may be another late result in casualties from repeated radiation, but amebic dysentery and schistosomiasis carry a great delayed hazard, and so does the effect of beriberi, which was so prevalent among our prisoners-of-war.

I have knowledge of a death at Bikini caused by drinking wood alcohol. There were other deaths due to various types of accidents. At Eniwetok we had a

death due to drowning, one due to a truck accident, and one due to a fracture of the skull encountered in a fight. A sailor sustained a fracture of the cervical spine with severance of the cord by diving into shallow water. He will be paralyzed, sterile, and impotent as long as he lives. None of the above tragic deaths received national news publicity. However, had we had a single death due to radiation, would it have been publicized? It would have received front page publicity throughout the country.

During August, 1946, I interviewed and examined a large number of Japanese who had recovered from radiation sickness. They appeared perfectly normal and were handicapped in no way toward pursuing their way of living. Such is not the case with thousands of our soldiers who participated in "conventional" warfare in World War II. They are handicapped by loss of limbs and eyes. Neither is it true of many of the Japanese who received no radiation injury but received severe burns and traumatic injury as a result of the bombing. It has been estimated that from 5 to 15 per cent of the deaths at Hiroshima and Nagasaki were due to radiation. Why do we concentrate on the 15 per cent and forget the 85 per cent?

The atomic bomb was developed as a blast weapon of war and strategically so used. The radiation effect was never considered to be the prime component of its effectiveness. The destruction attendant to the blast, heat, and secondary fires was paramount. In Japan there was no significant "poisoning" of the ground by fission products or induced activity from neutron capture, and yet many believe that the bomb is primarily a weapon which destroys by mysterious radioactivity.

I have appeared before local defense agencies in many of our cities. They are preparing for defense against an atomic bomb attack—universally they are thinking only of radiation. Invariably they ask, "Where will we get Geiger counters?" Geiger counters are not their only problem—fire-fighing equipment is many times more important, as are well organized rescue squads. "But we have been told that we will not be able to go into a bombed city and rescue the injured." Hiroshima and Nagasaki disprove this. The residual radiation from an air burst bomb is insignificant. The significant prompt radiation occurs in a matter of microseconds and does not extend beyond a 2,000 yard distance. Immediately after such a detonation, such as Hiroshima or Nagasaki, it is perfectly safe to enter into a bombed area and rescue the thousands whose injuries will be such that they will not be able to walk. Unless evacuation of these injured is effected, thousands will be burned to death by secondary fires. Such was the case at Hiroshima and Nagasaki. But how about an underwater or ground burst? In such cases certainly the residual radiation hazards would be increased many fold, but the blast and fire hazards and the prompt radiation hazard would be proportionately decreased, and in my opinion, the total number of casualties would be less.

Much has been written about "poisoned" water. In case the water supply of a city is contaminated by fission products or unfissioned material from an air burst of an atomic bomb, all the evidence on hand at present indicates that after passing through a modern filtration plant the water at the tap would be safe to drink. More work will be done to prove or disprove this statement. We do know from our experience at Bikini that the water from evaporators used on the ship is safe for drinking. Again we must not forget that frequent cases of typhoid fever still occur from drinking polluted water.

If we are to live with this piece of ordnance and ever have to use it again in the defense of our way of living, we must acquire a practical attitude, not

only toward its efficiency or limitations as a bomb, but also toward the possible effects and limitations of this "mysterious" radiation.

We must recognize that the casualties caused by the blast and burns from this weapon will be many times greater than the deaths caused by radiation. We must also dispel the erroneous idea that the rescue work of the injured will be impossible due to residual radiation.

It is of the utmost importance that we recognize that the radiation hazards are *additional* hazards. They only add to the complexity and perhaps even the severity of the other hazards of total warfare. Therefore, we must not and cannot concentrate on this phase of atomic warfare to the detriment of other defensive preparations. Rather, we must know and understand the facts about ionizing radiations if we are to survive the other dangers.

American Board of Preventive Medicine and Public Health Holds First Examination

The American Board of Preventive Medicine and Public Health, Inc., held its first examination for certification on May 14 and 15, 1949, in Washington, D. C. There were 37 candidates, 32 of whom passed successfully. The examination consisted of an all day written examination and of oral examinations given the next day. In the oral examination the candidates were examined individually by an oral board. The written examination was of the objective type and consisted of 400 questions in the following areas of knowledge:

I. *Health Protection and Promotion*
- Geriatrics and Chronic Diseases
- Maternal and Child Health
- Mental Health
- Nutrition
- Oral Health

II. *Environmental Sanitation and Industrial Health*

III. *Communicable Diseases*
- (Including Tuberculosis and Venereal Diseases)

IV. *Public Health Laboratory*

V. *Public Health Practice*
- Administration
- Laws

VI. *Background Knowledge and Techniques*
- Health Education
- History
- Public Health Nursing
- Statistics

The next examination for certification will be given in New York City just prior to the Annual Meeting of the American Public Health Association on October 22 and 23. Applications should be sent as promptly as possible to Dr. Ernest L. Stebbins, Secretary-Treasurer, American Board of Preventive Medicine and Public Health, Inc., 615 N. Wolfe St., Baltimore, Md. For requirements and qualifications, reference should be made to the *American Journal of Public Health*, Vol. 39, page 426 (Mar.), 1949, and page 561 (Apr.), 1949. It should be noted that no persons will be admitted to the Founder's group after July 1, 1950.

Water-borne Diseases*

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THE subject about which I have been asked to speak today is an all-inclusive one, involving directly and remotely a disturbance of function or structure of any organ, tissue, or fluid of the body by water. This is such an enormous task that the time allocated permits only an abbreviated discussion of the subject with emphasis on one phase in which we have been particularly interested.

During the latter part of the 19th century, enteric bacteriology became a reality. Between 1880, the time when Eberth described the etiologic agent of typhoid fever, and the first few years of the 20th century, many of the present-day enteric pathogens were recognized; but it was not until the latter part of the first decade of the 20th century that much was known about the epidemiology and control of these diseases. At this time water played a very important role in their spread.

With improvements in the sanitary handling of food, the use of modern treated water supplies, and the sanitary disposal of body wastes, a marked progressive reduction in the incidence of enteric disease and of carriers has taken place. Public water supplies have been improved and so closely guarded that water-borne outbreaks of enteric disease from this source are becoming a rarity. Of recent years those few outbreaks reported in the United States, in which public water supplies were incriminated,[1] have been traced to accidents or breaks in sanitation such as back siphonage, inadequate chlorination, cross-connections, surface pollution, defective well casings, and ruptured sewage mains contaminating the supply. This speaks well for the marked advances made in sanitary engineering.

Many elderly practising physicians in Iowa have informed me that in the early part of the 20th century they saw many more cases of typhoid fever than obstetrical cases and that treatment of cases of typhoid constituted the greater share of their practices. "In 1900 over 23,000 people in the United States died of typhoid fever[2] and more than 100,000 deaths were due to diarrhea-enteritis and dysenteries. In 1944, the deaths from typhoid fever were less than 600 and deaths from the other enteric diseases dropped to about 15,000." Today, few Iowa physicians see a case of typhoid. During 1947, 3,062 cases of typhoid fever were reported to the U. S. Public Health Service,[3] of which 46 were reported for Iowa. Up to September 1, 1948, 20 cases have been reported in Iowa all due to heretofore unrecognized carriers. Five new carriers were responsible for these cases. In so far as I can find, outbreaks of typhoid in Iowa during the past 20 years have been traced to food handling carriers. In several borderline instances either soft drinks, water, or food may have been the source. "For the past thirteen years not one case of typhoid has been traceable to a public water supply in Michigan,"[4] according to the Michigan Department of Health.

* Presented before the Engineering Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

The importance of a water supply is so well fixed in the minds of the laity that when a case of typhoid is discovered, the tendency still remains for checking the water and milk supply for typhoid organisms before any consideration is given to the human carrier who transmitted the infection to the vehicle. In such instances, testing the water and milk in most instances is rarely warranted, except when epidemiologic evidence indicates.

During World War II, a marked increase in enteric and other diseases spread by water occurred in war-ravaged areas, save for England where safe water was maintained. Many water supplies and sanitary installations were bombed out, and in many instances replacements were impossible. With this breakdown and inadequate substitutions, typhoid fever, salmonellosis, and dysentery increased in alarming proportions. With the increase in cases, there was a proportionate increase in carriers. This increase in cases and carriers, lack of adequate sanitary disposal of body wastes, and food contamination led to marked pollution of wells, springs, and streams, resulting in a vicious cycle. So polluted became the streams that typhoid bacilli could be isolated from them and vaccination of human beings against typhoid was not entirely effective. Bathing in the streams added to the gravity of the situation. The finding of many carriers [5] following mild and asymptomatic typhoid and salmonellosis was not unusual.

When the improvised water supplies were chlorinated but without filtration, amebic dysentery and other intestinal parasitic diseases increased. It has been stated that cysts of *Entamoeba histolytica* resist ordinary chlorination [6] and that their removal can be accomplished by filtration. In some of our observations on embryonated ascaris ova it was noted that the embryos will resist 10 per cent formalin, and 10 p.p.m. chlorine for as long as four years under icebox storage. Apparently the shell membrane becomes impervious to these agents. To what extent other parasitic pathogens will resist chlorination needs further study.

In 1946, 32 outbreaks of water-borne disease were reported to the Public Health Service,[1] involving 4,512 cases with 2 deaths. Only 9 of these were traced to public water supplies while 22 were traced to private supplies and 1 to the use of a tidal basin for wading. In comparison with this, there were 318 outbreaks due to food products with 13,321 cases and 17 deaths reported.

Private water supplies continue to remain a source of minor outbreaks. The above figures reported I feel represent but a small portion of the actual occurrence of disease from private water supplies. Over a period of some thirty years, approximately 70 per cent of the farm wells in Iowa were found basically unsafe and were so proved on analysis of the water in our laboratories. Not only are these supplies contaminated from nearby privies, but they are subject to pollution via defective platforms and casings, from rains, and by fowls and animals permitted to run at large in the yard where the wells are located.

Infections by organisms of the *Salmonella* group are quite frequent among farmers whose water supplies are unsafe. Whether these infections can be traced solely to water, requires further detailed epidemiologic study of the entire farm population as well as of the water. It appears from meager epidemiologic data and cultures of stools in isolated instances that certain proteus and paracolon species found in farm wells in Iowa are pathogenic and are capable of causing diarrhea. Here again, more detailed studies are essential to eliminate animal sources of infection.

Although water supplies have not been definitely incriminated as a source of poliomyelitis, epidemiologic investi-

gations suggest that contaminated streams and improperly operated swimming pools may serve as a focus of infection. Poliomyelitis virus has been isolated from sewage, and it has been shown that the virus will resist ordinary doses of chlorine.

Some of the less common diseases that have been transmitted via water are those caused by chemical poisons such as lead, arsenic, and cadmium; poisoning from water-borne plants and shellfish; a wide variety of parasitic diseases; tularemia; brucellosis, shigella infections, epidemic jaundice, and Weil's disease. The status of minerals such as chlorides and manganese needs further study. The status of cyanogen compounds in water, traceable to algae, likewise needs further study.

A disease commanding a great deal of attention recently is that of fluorosis or mottling of the tooth enamel. It appears fairly well substantiated that dental caries is definitely decreased in areas where the well water supplies contain fluorine in concentrations of 1 p.p.m., and that supplies containing increased amounts above 1.2 p.p.m. show progressive increases in mottling. Control studies now being conducted in cities in which 1 p.p.m. fluorine is being added to the municipal water supply should give more definite information.

Cyanosis or methemoglobinemia in infants due to nitrates in farm well water continues to be a problem in Iowa since its recognition by Comly.[7] The actual incidence of this condition is unknown, due to lack of adequate reporting. Our attention is periodically called to cases in which parents of cyanotic babies or physicians are interested in tests of the well water involved as well as that of neighbors who have deep wells. Johnson and his associates [8] have reported the incidence of nitrate nitrogen in various types of private wells in Iowa. These data clearly indicate that a hazard to infant health exists in our rural areas from this source. Gilbert Kelso, Principal Water Analyst, and his staff in the Iowa State Hygienic Laboratory, have compiled data for 1½ years on 2,313 water supplies from private wells submitted for routine analysis. Of this number, 1,943 were less than 100 ft. deep and 645, or 28 per cent, contained NO_3N (nitrate nitrogen) above 20 p.p.m. Of 370 wells over 100 ft. deep 13, or 3.5 per cent, contained NO_3N above 20 p.p.m.

In another statistical study, involving 3,833 private wells, including 874 wells having above 20 p.p.m. NO_3N, 112, or 13 per cent, did not contain coliform organisms by standard methods of examination. Seven hundred and sixty-two, or 87 per cent, of these water supplies containing above 20 p.p.m. NO_3N also gave positive coliform tests. Therefore, it seems logical to conclude that the standard tests for coliform determination will rule out most of the nitrate-bearing waters as unsafe.

Of 1,475 well supplies containing from 0 to 10 p.p.m., NO_3N, 819 were under 50 ft. in depth, 304 were between 50 and 100 ft., 144 between 100 and 150 ft., 90 between 150 and 200 ft. and 118 above 200 ft.

Of 181 well supplies containing 11-20 p.p.m. NO_3N, 144 were under 50 ft., 32 were between 50 and 100 ft., 4 were between 100 and 150 ft., and 1 between 150 and 200 ft.

Of the 2,313, no wells over 200 ft. showed more than 10 p.p.m. NO_3N. In general, it may be said that the deeper the well the less likelihood there is that the water will contain NO_3N in sufficient quantity to cause cyanosis.

Out of 69 cases of cyanosis in infants traceable to water during this same period, 27 supplies contained 50 p.p.m. NO_3N or less, while 42 supplies contained from 51 to 801-plus p.p.m. Of the water supplies involving these cases, 53 were bacteriologically unsafe whereas 16 contained no coliform bacteria.

You may ask what concentration of NO_3N in water is capable of producing cyanosis in infants? This question I feel can be answered only after more complete statistical, clinical, and epidemiological data have been accumulated. From data submitted with well water specimens to our laboratory, cyanosis was associated with use of water in which at the time of the analysis 20 p.p.m. were found in 4 instances, 15 p.p.m. in 2 instances, 10 p.p.m. in 1, 9 p.p.m. in 1, 5 p.p.m. in 1, 2 p.p.m in 1, 0.4 in 1, and in 2 instances no detectable nitrates. Whether the cyanosis in the latter instances were due to congenital heart disease or other causes I cannot say. However, we are well aware of the fact that marked changes in nitrate levels in water will vary on periodic testing, from causes which we cannot define. It is possible that chemical fertilization of the soil and rains play an important role in the varying nitrate content of rural wells. In one instance, at the time of cyanosis in an infant the well water was found to contain 70 p.p.m. NO_3N whereas two weeks later analysis of another sample showed only 10 p.p.m.

There are apparently many problems which remain unsolved in relation to this disease. One of the mysteries is why cyanosis does not occur in all babies fed on artificial formulae diluted with high nitrate-bearing waters. It has been quite well established that when nitrate compounds in water are converted by bacterial action in the intestinal tract of certain infants to nitrites, the latter are absorbed into the blood, resulting in the oxidation of hemoglobin to methemoglobin, thus leading to cyanosis. A number of controversial theories have been advanced as to why certain infants who ingest these supplies do not contract the disease. These theories I will not discuss here as they are highly controversial.

Another question which might be asked is, whether adults suffer from the presence of the nitrates in water. The answer at this time is not definitely known. Diarrhea has been noted in some adults at the same time their offspring have diarrhea and cyanosis.

In spite of the enviable record made in reducing water-borne diseases, as health educators we fail in many respects to get over to the public the necessity of following accepted sanitary practices, which, if followed to the letter would for all practical purposes eliminate water-borne diseases. To maintain this record we must make certain that persons in charge of operating water plants and those who examine water for purity must be thoroughly trained and fully aware of the responsibilities of their positions. The job has been well done; let us strive to perfect it. We must continue to guard closely our water supplies in order to maintain the excellent record established.

CONCLUSIONS

1. Water-borne outbreaks of disease from public water supplies have been practically eliminated in the United States save for those due to accidents and breaks in sanitation.
2. Data are presented showing the relationship of nitrates in rural water supplies to the depths of the wells.
3. Sixty-nine cases of infant cyanosis associated with NO_3N in rural water supplies are reported.
4. There appears to be close correlation between the NO_3N content of rural water supplies and their coliform content.
5. Accumulated data suggest that in cyanosis emergencies, water from properly constructed drilled wells over 200 ft. in depth may be tentatively substituted in infant formulae until safety tests can be adequately checked.

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Medical Care Section Created in California School of Public Health

A Section in Medical Care Administration has been established by the University of California School of Public Health at Berkeley. The new curriculum complements the school's existing programs in hospital management and public health administration. Qualified graduate students may major in medical and hospital administration courses leading to the M.P.H. degree. Edward S. Rogers, M.D., dean of the school, heads the joint division and E. Richard Weinerman, M.D., is developing the new medical care curriculum. Drs. Sydney S. Norwick, Berkeley, and Dean A. Clark, new administrator of the Massachusetts General Hospital in Boston, are part-time visiting lecturers. A small research staff, headed by Charlotte F. Muller, Ph.D., is making medical economics field studies. The section will serve as a source for consultation in problems of medical care, offering technical aid and other help to interested persons or organizations and as a repository of factual data in medical economics.

Standards of Dental Care for the Different Age Groups*

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IN recent years considerable attention has been given to the need for establishing minimum and optimum standards of health care. These terms imply that some health services are more essential than others and that the status of an individual's health may be determined by the type and amount of health care he receives.

Although common agreement has not been reached as to minimum and optimum levels of health care, the dental and medical professions are attempting to establish criteria which will aid in making the best use of health service facilities.

Probably none of the health professions has experienced so rapid a change in treatment objectives as has the dental profession. In less than a quarter of a century its main interests have changed from mechanical repair to prevention—from a skilled art to a biological science. This evolution is only now beginning to make an impact upon the practice of dentistry and upon the administration of public dental health services. Thus, it is safe to assume that the selection of standards of dental care today can be only a transitory selection and subject to continuous revision as new methods are found to prevent or control oral diseases and defects.

ORAL HEALTH DEFINED

Definitions of physical, mental, and emotional health are difficult, probably because the physiology and functions of the body and mind are not fully understood. Similarly, it is difficult to establish a definition of oral health.

One definition of mouth health, which seems to satisfy current requirements and is in keeping with present-day knowledge, is a modification of a definition of health by Lawrence J. Henderson of Harvard University and was prepared by the graduate students in public health dentistry at the University of Michigan.[1] This statement defines oral health as

> ". . . the objective which the dental profession has in mind in assisting the individual to achieve a satisfactory state of function, comfort, and appearance, provided that his condition has been completely appraised, that he has been informed of existing defects, and that proper treatment has been suggested and made available to him."

Dr. B. B. McCollum[2] has suggested essentially the same definition but in fewer words. He stated that "the normal mouth, as far as the individual dentist is concerned, is what he thinks it should be." In support of this definition Dr. McCollum added that "the concept of the normal is dependent on the intelligence and the education of the man behind the concept."

Optimum oral health, then, cannot be measured precisely until a more scientific method of appraisal is found.

* Presented at a Joint Session of the Medical Care and the Dental Health Sections of the American Public Health Association, at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

Furthermore, the attainment of optimum oral health is dependent upon the availability and proper use of all the preventive, diagnostic, and treatment aids known to dental science.

ORAL ILL HEALTH DEFINED

It would be safe to say that at the turn of the present century oral ill health was associated mainly with dental caries, pyorrhea, and impaired function as a result of missing teeth. Today, a thorough oral diagnosis would include examinations for impaired masticatory function, caries, and hypoplasia of the teeth, periodontoclasia, mal-occlusion, and other anomalies, cysts, tumors, malignant and precancerous lesions, oral manifestations of systemic disturbances and traumatic injuries.

Complete dental care would involve the use of all effective measures to prevent these conditions, and in case they do occur, to cure or correct them.

When circumstances prevent the full use of these measures the level of dental health is, obviously, lowered. Some health workers have attempted to fix the lowest "acceptable" point on this imaginary scale with the view of establishing a minimum standard of dental care. Such attempts have not been successful because it is difficult, if not impossible, to compromise with the objectives of a health service. A minimum standard of dental care will assure us of only one thing—a low standard of dental health.

DENTAL CARE STANDARDS FOR CHILDREN

In 1945 the American Society of Dentistry for Children formulated minimum standards of dental care for children at the request of the Council on Dental Health of the American Dental Association.[3] It was the considered opinion of a representative group of pedodontists that in order to meet minimum requirements for growth, development, and health, dental services for children should include:

1. Periodic examinations, including x-ray diagnosis
2. Dental prophylaxes
3. Restoration of carious teeth with silver amalgam or silicate fillings, or with metal castings if necessary
4. Pulp treatments, including cappings, partial or total pulpectomies when indicated
5. Anesthesia, when necessary for the control of pain
6. Preventive orthodontic appliances to maintain space and to prevent mal-occlusion
7. Prosthetic appliances, when needed to replace missing teeth and to restore function and satisfy esthetics
8. Treatment of periodontal disease and mouth infections
9. Extraction of hopelessly diseased, impacted or supernumerary teeth
10. Surgical procedures when necessary for the health of the child
11. Patient and parent education to encourage the application of scientific knowledge for the prevention of disease and the promotion of health

Recent studies have shown that the topical application of sodium fluoride should be added to this list. The Society of Dentistry for Children, undoubtedly, would agree to the addition of this caries-preventive measure.

To many people, this list of dental services represents a relatively high standard of dental care, probably because of the prevailing practice of judging standards by the amount of service most children now receive.

Dental services, all too frequently, are limited to prophylaxes, fillings, and extractions, but such substandard dental care tends to give a false sense of security to both the parent and the child. The neglect of other conditions needing treatment almost always results in a more involved condition requiring extensive treatment in later years.

Unfortunately, there is no immediate answer to the problem of supplying even minimal dental services for all children. Therefore, in order to protect the dental health of as many children as possible, the health professions might well con-

sider the proposal of Dr. Norman F. Gerrie to make available, as far as possible, the most essential dental services. Dr. Gerrie, in a paper presented during the 1946 meeting of this Association, listed the following services in their order of importance [4]:

1. Examination and diagnosis
2. Treatment of acute or painful conditions of the mouth
3. Treatment or removal of hopelessly diseased teeth and partial pulpectomy for young permanent teeth with vital exposed pulps
4. Treatment of gingivitis or mouth infections which have passed the acute or painful stage
5. Repair of injured or carious permanent teeth
6. Restoration of carious primary teeth
7. Orthodontic and prosthodontic care
8. Dental prophylaxis
9. Correction of anomalies such as cleft lip and palate

The topical application of sodium fluoride should be added to this list, also.

While most dentists probably will agree that these dental services are as essential as any, many other dentists will point out that the selection of the most essential services is simply a matter of personal opinion and is not, necessarily, based on adequate scientific evidence.

Orthodontic services, for example, may some day prove to be high on the list of essential services. The health professions are finding increasing evidence of the value of orthodontic care to the physical and mental well-being and social adjustment of children and youth. It has been estimated that there are approximately 40 million children under the age of 16 years in the United States, of whom 7 to 8 million need major orthodontic care and of whom less than 4 out of every 100 who need it are actually receiving treatment.[5]

It cannot be said with any degree of finality, when thinking of the cumulative effect on all aspects of life and health, that the neglect of one oral disease or defect is significantly more damaging than the neglect of another.

Thus, it would seem that standards cannot be set without an acceptable yardstick, scientifically conceived. Without benefit of such a yardstick we have no other choice than to rely on majority professional opinion in the adoption of standards of dental care for children.

DENTAL CARE STANDARDS FOR ADULTS

Standards of dental care for adults, like those for children, should be based on the prevention, early detection and treatment of oral diseases and should aid the individual to achieve a satisfactory state of function, comfort, and appearance.

As was stated before, the old concept of dental practice, limited mainly to the repair or extraction of carious teeth and the construction of prosthetic appliances, is no longer acceptable. Dentistry has more to offer than the mechanical repair and replacement of teeth, skilled as those services have become.

Modern standards of dental care for adults involve the prevention and treatment of (1) diseases of the teeth; (2) periodontoclasia, (3) anomalies, (4) cysts, (5) malignant and pre-cancerous lesions, (6) oral manifestations of systemic disturbances, (7) traumatic injuries, and the preservation or restoration of mouth function.

Again, as in the case of dentistry for children, a lowering of these standards must inevitably result in a lower level of oral health.

Indifference on the part of individuals to the need for complete dental care, or lack of dental resources to provide it, often necessitates the restriction of services to those that are the most essential. It would seem logical that the services that promote health and restore function should be sacrificed last in such cases.

Restricted services for adults in the order of their importance are:

1. Examination and diagnosis
2. Treatment of acute or painful conditions of the mouth
3. Elimination of pathosis
4. Correction of irritations that may result in malignant lesions
5. Treatment or removal of hopelessly diseased teeth
6. Treatment of periodontoclasia
7. Repair of injured or carious permanent teeth
8. Dental prophylaxis
9. Replacement of lost teeth and restoration of function
10. Patient education

In recent years recognition has been given to the need for rehabilitating persons for employment. The dental services listed above might well be used as a guide for vocational rehabilitation. The prime purpose in these cases would be to correct those oral conditions, as a temporary expediency, that interfere with the individual's employment.

CONCLUSION

The rapid growth of the body of knowledge that makes up the practice of dentistry is producing evolutionary changes in our concepts of oral health, mouth function, and dental service. Our new knowledge has resulted in a fuller appreciation of oral health and of high quality dental service, which is commendable. Our new knowledge also has resulted in a feeling in some quarters that the dental health problem is beyond solution, which is unfortunate.

Actually, our new knowledge is providing us with clues for future action. These clues strongly suggest that our goals cannot be reached if we continue to follow outmoded and therefore unacceptable standards of dental care. But our goals can be reached by insisting on the highest possible standards based on authentic information, and if circumstances demand curtailment of service, by putting to the fullest use those services we know to be most essential for physical and emotional health, for growth and development and for optimum function.

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The Caries Problem of the School Child*

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EVERY dentist should pause long enough to ask himself the question that many others frequently ask, "What, anyhow, can dentistry contribute to a child's health?"

Were each operator to ponder his answer thoroughly, unemotionally, and scientifically, he should answer: "Dentistry, (1) with family coöperation, can control most children's dental caries; (2) can, with the child's coöperation, prevent or control soft tissue inflammation and disease of the supporting tissues of the teeth—and even can establish a regime of home care and periodic office treatment that will prevent much of the periodontal disease of adult life; (3) can, with specialist coöperation, correct maloccluding teeth, and prevent a relatively small number of the gross tooth irregularities that may interfere with mastication, with the health of the supporting tissues, and with the emotional stability of a young person; (4) can, with specialist coöperation, treat the problems arising from anomalies of the oral cavity—the cleft palate, congenitally missing teeth, supernumerary teeth, hypoplastic teeth, and other developmental dental abnormalities; (5) can treat and restore young teeth involved in accidents; (6) can detect oral cancer in the early stages; (7) can prevent and eliminate oral infection which may contribute to body disease."

When the dentist himself answers the challenging query presented by some professional and many non-professional persons, he convinces himself readily of his extensive contribution to the public's health. With this conviction comes the realization that a complete, modern, scientific oral health program for all would utilize more health personnel and require a greater share of the health dollar than almost any other of those services in the congeries of activities designed to assure the public's health. Economical preventive and control technics are urgently needed for dentistry.

My task, in the limited time available, is to present just one of these health contributions of the dentist—the control of dental caries in school children. To aid school health people to achieve reasonably scientific conclusions and to make reasonably scientific statements about dental caries, it seems pertinent to divide my task into three lesser tasks: (1) state the mechanism of dental caries; (2) delimit clearly those factors which are essential for caries to occur; and then (3) appraise the value of the control measures currently provided by research.

A. THE MECHANISM OF DENTAL CARIES

Thirty-nine of 61 health education pamphlets dealing with dental care, which were appraised by a class of graduate students of public health during the spring semester of 1947–1948, started off with some modification of the apologetic statement, "We don't know

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what causes tooth decay, but . . ." A detailed list of measures invariably followed, which, adopted by the reader, would prevent dental caries—cause unknown. These pamphlets were the results of the health promotion efforts of classroom teachers, principals of schools, health educators, physical education directors, pediatricians, obstetricians, nurses, biochemists, dieticians, nutritionists, dental hygienists, and in one instance, an anthropologist. Obviously none of these writers possessed a thorough background of information about the development, microscopic structure and physiologic processes of vital human teeth, although some acknowledged the assistance of local dentists. In view of the authorship, it seems pertinent to point out that dentists do know the cause of dental caries, although they may not know some of the factors involved in immunity or lack of susceptibiltiy to caries and, likewise, a number of the factors that can be utilized in caries control.

A year ago last September, 114 scientific people, many of them internationally known for their caries research, spent a week in a workshop on the evaluation of caries control technics at the University of Michigan. With the assistance of research, statistical, and librarian consultants, the present status of information about the process and control of caries was appraised most critically. The committee, which was assigned the evaluation of the mechanism of the caries process, reported after a week of study: "Dental caries is a disease of the calcified tissues of the teeth. It is caused by acids resulting from the action of microörganisms on carbohydrates, is characterized by a decalcification of the inorganic portion and is accompanied or followed by a disintegration of the organic substance of the tooth."[1]

Perhaps it should be reëmphasized, then, that dentists do know the cause of dental caries and they know that bacteria, fermentable sugars, and organic acids are involved. Some further conclusions of a second evaluating committee of the Michigan Workshop also should be repeated at this point. Stated briefly, this group's conclusions were: pregnancy and lactation in themselves are not a cause of dental caries[2-12]; sickness, general health or nutritional status, with minor reservations, have little significant bearing on the caries process[1-3, 11, 13-20]; there is no proof or clinical evidence of a relationship of endocrine disturbances and the caries index[21, 22]; and no clinical or experimental evidence is available to support the theory that one's emotional state may influence dental caries.[23]

With a definition of dental caries available as a guide, I should like to turn to my next task.

B. THE FACTORS ESSENTIAL FOR DENTAL CARIES

Somewhat over-simplified perhaps, but nevertheless quite readily understandable, the factors may be outlined which are essential for dental caries. In the first place, the patient must be susceptible to dental caries; very few people are immune. In the second place, the patient must have teeth and the hard tissues of his teeth must be soluble in weak organic acids. In the third place, acidogenic (acid-forming) bacteria, certainly, and apparently aciduric (acid-tolerating) organisms must be present and active in large numbers in the patient's mouth. In the fourth place, the food, the substrate on which aciduric bacteria live, must be made available frequently in the patient's mouth; in other words, the host must ingest fermentable carbohydrate and usually in the form of sugar. In the fifth place, certain specialized "promoters" of chemical activity, the necessary enzymes, must be present in the patient's mouth or must not be inhibited when manufactured by resident

bacteria, because at least 13 chemical reactions[24] are required to degrade a fermentable sugar to lactic acid. Finally, in the sixth place, the organic acids, once produced, must be protected from the neutralizing effect of the patient's saliva in order that they may react with the mineral surface of a tooth. A tough, adherent film, the bacterial plaque, therefore, appears essential to the caries process.

These six essential factors, (1) susceptible patient, (2) acid-soluble tooth structure, (3) aciduric organisms, (4) carbohydrate substrate, (5) bacterial enzyme system, and (6) bacterial plaque, deserve careful consideration. They serve as research guideposts since interference with any one of these factors, or any combination of them, presents possibilities for prevention or for the reduction of the patient's dental caries. Each, then, will be surveyed in the order listed and some of the technics of possible interference considered.

C. THE SCIENTIFIC CONTROL MEASURES

1. Patient Susceptibility

Almost everyone has an "Uncle Ned." Uncle Ned is the obscure relative in one's own or some neighbor's family tree; he is the rare individual who did not brush his teeth, did not go to the dentist, did not worry about the type of food he ate, and lived until a ripe old age with every tooth intact save a few loosened by pyorrhea. He is an immune, and immunity to dental caries has been studied.

Over a period of time, by selective breeding, Hunt and his associates[25] at Michigan State College have developed a strain of rats immune to dental caries and also a strain highly susceptible to caries. Klein[26-30] has reported studies of human families in which members for a few generations have experienced little or no caries. Jay, Crowley, and Bunting,[31, 32] Hill,[33, 34] Williams,[35-38] and Canby and Bernier,[39] all have studied the possible mechanism of immunity. It is known that the lactobacillus is absent from the mouths and digestive tracts and that the blood agglutinin titer to lactobacilli is high in these immune persons. On the other hand, preliminary experiments to secure immunity with vaccines have been disappointing and the principle of biological selectivity for the control of human beings would be too impractical to discuss.

2. Solubility of Tooth Structure

Much has been written about "feeding teeth" to make them hard and strong so that they will not decay. Such a presumption appears unwarranted.

Certain hypoplasias of the enamel and dentin of teeth have been demonstrated to be inherited anomalies of development,[13] and further studies may show that much of the macroscopic hypoplasia noted in teeth follows a genetic pattern. At any rate, it can be shown clinically that very well calcified teeth develop cavities frequently and that teeth with gross hypoplasia — tooth crowns even deformed—may not develop any cavities at all.[11, 40] In well calcified teeth probably not more than 2 per cent of the enamel is organic material, leaving 98 per cent of the enamel surface that can be dissolved by acids. Whether this surface is 90 or is 98 per cent mineral should make little difference to the chemical action which initiates caries.

On the other hand, if the surface of the enamel can be impregnated with any insoluble material or changed to become more nearly insoluble in the weak organic acids, a possibility exists for interference with the mechanism of dental caries. In the laboratory, applications to enamel surfaces of solutions of stannous fluoride, silver nitrate, some other inorganic salts, and a few native organic compounds, have made the enamel less soluble in acids.[41-47] Much publicity recently has been given the topical application of a 2 per cent sodium

fluoride solution to children's teeth as a measure to reduce the caries attack rate. This application perhaps provides one method to interfere with the solubility of enamel *in vivo* since 4 applications to the dried surfaces of the crowns of young teeth, following an initial prophylaxis, have reduced the caries attack rate in large groups of children by 40 per cent.[48-51] Some children appear to receive greater benefit and some much less. No evidence is available at present that the teeth of adults can gain any benefit from this treatment.[52]

Electron microscope studies provide an indication that the crystalline surface of enamel is changed by the appearance of new crystals of highly insoluble fluorapatite.[53-56] Previous to this research on the topical application of sodium fluoride, it had been noted that the fluorosed teeth formed in children who, for the first 8 years of life, had continuously drunk a community water which contained fluoride in excess of 1 p.p.m., were much less susceptible to caries than were non-fluorosed teeth.[57] In large groups of 10 to 12 year old school children the attack rate would average two-thirds less than in those children reared on fluoride-free waters. However, since the counts of acid-forming lactobacilli found in the salivas of these children also were reduced tremendously,[58] it is difficult to ascertain whether the caries reduction can be ascribed to lessened solubility of the teeth or to a bactericidal effect on the acid-forming organisms.

The artificial addition of 1 p.p.m. of fluoride to municipal water supplies is now being attempted in carefully controlled experiments to see if this addition will produce the same diminution of caries that results in those areas in which children are reared on the natural fluoride-bearing water. Fluorides used in mouth washes and chewing gum, or ingested in tablets, have not been demonstrated to be beneficial to children's teeth.[59-61] Calcium fluoride, the form found in tablets and bone flour, is one of the most insoluble fluorides.

The other compounds that have reduced the solubility of extracted teeth in the laboratory either have not been tested extensively in the mouths of children or have failed to affect the caries process when tested on living teeth in their normal environment. Lead fluoride has proved innocuous[47] and the efficiency of silver nitrate still is to be proved when used under the conditions of routine dental practice.[62]

Recently, considerable publicity also has been given to a technic for the prevention of caries by the impregnation and "plugging" with insoluble salts of the bundles of organic fibers which frequently are trapped in tooth enamel during its formative period.[63, 64] The basis for this technic is the belief that caries begins as a proteolytic process in these so-called vulnerable "organic pathways." Following a prophylaxis, an agent to dissipate surface tension is applied to the surfaces of the dried teeth and the crowns, then moistened successively with solutions of zinc chloride and potassium ferrocyanide. Controlled research, involving a large number of children, is required to evaluate this technic thoroughly. In the meantime, it may be pointed out that these bundles of organic fibers very frequently are completely absent in the area of a cavity in a tooth.

3. Acidogenic Organisms

A number of microörganisms are able to produce sufficient localized acidity to decalcify enamel.[65-71] Among these bacteria are strains of streptococci, yeasts and lactobacilli. So much evidence has been submitted to substantiate the role of acid-forming bacteria in the caries process that school health workers, it would seem, can accept this role without further questioning. The lactobacilli, in fact, can produce such a low pH, can

live in such an acid environment and are present so consistently in the salivas of children experiencing active caries, that the number of them found per ml. of saliva now is used as a caries index.[72, 73] Lactobacilli counts are being furnished to dentists by a number of state laboratories.

Inasmuch as bacteria are among the essential factors for the caries process, their reduction, their elimination or any serious interference with their metabolism or multiplication all provide possible technics of caries control. Lactobacilli have been eliminated from the mouths of children by the drastic removal of readily fermentable carbohydrates from diets.[72, 74, 75] In experimental groups of children and college students, lactobacilli have been reduced in number by the use of penicillin in dental powder twice daily.[76-78] Ammonia nitrogen developed naturally in the bacterial plaques has been reported to inhibit the growth of lactobacilli,[79, 80] and well controlled experiments are now in progress in Illinois to test thoroughly the effectiveness of dibasic ammonium phosphate, used as a mouth rinse or a powder dentifrice, in the reduction of the counts of these aciduric bacteria in children's mouths. Recently the presence of the amino acid, tryptophane, in the salivas of patients has been reported to be associated with a reduction in the caries rate,[81-83] whereas the addition experimentally of indol and one other decomposition product of tryptophane to cultures of lactobacilli has been reported to destroy these bacteria.[84] Two other amino acids, alanine and aspartic acid, will in immunes' salivas, readily become deaminized which is the initial step in the breakdown of an amino acid to ammonia.[85]

4. Carbohydrate Substrate

Government reports, it has been pointed out, indicate that sugar consumption increased from 12.1 lb. per person in 1830 to 108 lb. in 1929.[86] Recently, current sugar consumption has been stated much more graphically,[87] "We now, in a year, manage to consume approximately our own weight in sugar."

Since appreciable amounts of fermentable sugars have not been found in freshly secreted human salivas,[88] it would seem that dental caries could be attacked by working on the national substrate. Such attacks have been made. The older of the two well demonstrated control technics for the control of caries, the elimination of readily fermentable carbohydrates from one's diet for short periods, has been proved successful. Literally, the oral aciduric bacteria have been starved to death in the mouths of 83.4 per cent of a demonstration group of 809 coöperative individuals.[72] This type of control has been instituted successfully for individuals in many parts of this country, but it does not seem that it can become a mass control technic in an economy which is increasing its sugar consumption as rapidly as in the United States.

Since, within 3 to 5 min. after the ingestion of sugar solutions, the acidity of dental plaques in caries-susceptible mouths rises to a point sufficient to decalcify enamel and since it may be maintained for 30 to 90 min.,[89-93] the suggestion has been made that the teeth be brushed and the mouth be thoroughly rinsed with water immediately after every meal or snack which includes sugar. Whether this suggestion can be utilized as a practical method to reduce caries, or not, requires testing.

There remain, of course, many possibilities for interference with the complex system which degrades sucrose to lactic acid.

5. Enzyme System

Inasmuch as a set of 12 or 13 enzymes and coenzymes now are known to be essential to produce lactic acid from

sucrose,[24] it seems obvious that an opportunity should be found eventually to attack the caries process through another of its essential factors. It would seem, in fact, that the most productive approach would come from the incorporation in commercial sugar, after its final refinement, of a stable, colorless, tasteless, non-toxic inhibitor of enzyme activity.

Some promising research with organic peroxides and glyceric aldehyde has recently been reported.[94]

Also in the research stage are a number of other possible enzyme-inhibiting processes or agents. Sodium bisulphite,[95] it has been reported, may combine with the aldehydes of broken down carbohydrates and prevent the formation of lactic acid; carbamide (synthetic urea), it has been reported,[96] may react with the enzyme urease to form ammonium carbonate, which, in turn, interferes with acid production; certain of the amino acids have been reported to reduce the acid production of salivas in laboratory experiments[81-83, 97]; the time required for the hydrolysis of starch by the salivas from mouths without caries has been reported to be greater than for the salivas from mouths with caries[98, 99] and that research finding has lead to speculation concerning another attack route; a synthetic quinone, menadione, incorporated in chewing gum, has been reported in an initial experiment to have lowered the caries attack rate by interference with the production of acid.[100, 101]

Finally, thiamin has been stated to be essential for bacterial growth and carbohydrate metabolism and its absence has been associated with a low caries attack rate.[102, 103] Commenting on its elimination from the diet as a caries control technic, one reviewer says, ". . . it is not likely that any of us would advocate that the disease, dental caries, be exchanged for berberi or its subclinical manifestations."[104]

6. Bacterial Plaque

Since saliva maintains itself in the human mouth at a pH relatively close to the neutral point,[105-107] one legitimately might ask the question, "Why does not the saliva neutralize the organic acids as soon as they are formed and thus prevent decalcification of the teeth?"

The answer probably lies in the ready formation of the dental bacterial plaque. Left undisturbed for a few days on "protected" contours of the teeth, organisms, mucin and mouth debris form an adherent, tough, filamentous covering on the enamel surface. Studied microscopically, the plaque reveals a dense, feltlike mass with long filamentous organisms (leptothrix and others) protruding from the outer surface; while, studied bacteriologically, the plaques associated with beginning cavities provide a high correlation with the presence of aciduric bacteria.[108-113] In some of its characteristics the plaque, as studied in the laboratory, behaves like a selective membrane which permits the diffusion of sugar solutions and interferes with penetration and prompt neutralization by the saliva.[110] Salivas, it is true, vary in amounts and in buffering capacity and these factors may account for some of the differences in caries-susceptibility.

Zephiran in 1:1,000 and urea in 50 per cent solutions, which are powerful bactericidal agents in the laboratory, have been able to penetrate intact plaques only with difficulty.[114] The application of the urea solution in the mouth for 4 min. has been reported to interfere with acid production up to 24 hrs.[115] A urea mouth wash now is being tested on a large group of school children along with a dentifrice of dibasic ammonium phasphate. The commercial mouth washes sold in the past were worthless.

To date, a detergent that will remove the bacterial plaques promptly from

teeth has not been reported. The conclusion of the Michigan Conference[1] also was not very hopeful regarding the efficacy of toothbrushing for this purpose: "There is no evidence that toothbrushing as ordinarily performed will prevent the formation of plaques." At the same time, it was pointed out, that proper brushing appears helpful in the stimulation of healthier gingival tissues.

SUMMARY

Very briefly, it must be admitted, this paper has stated the contribution that dentistry can make to a school child's health, has presented the mechanism of the caries process, has outlined the six factors essential for caries—a susceptible patient, acid-soluble tooth enamel, acidogenic bacteria, carbohydrate substrate, a specialized enzyme system, and the bacterial plaque, and it has reviewed a number of the control technics which researchers are testing for interference with each of these factors. At the moment, it can be said, there is a convincing body of evidence to indicate the validity as control measures of the topical application of sodium fluoride solution and the restriction of fermentable carbohydrates for short periods in children's diets. There also is excellent presumptive reason to anticipate that both the liberation of 1 p.p.m. of fluoride in communal drinking waters and the daily use of a combination of an ammonia-liberating dentifrice with a carbamide mouth wash will be developed as routine caries control technics for children.

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Adjustment of the School Program for the Physically Handicapped Child*

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DR. Mackie—We in America have long regarded public education as the rightful heritage of all children. Yet even today we find that there are many educable children who, because of severe limitations, are either not receiving education or are denied access to educational programs suited to their needs.

Estimates suggest that from 4 to 5 million children between the ages of 5 and 19 are so exceptional that special school adjustments are necessary if they are to make optimum progress. Of these, perhaps half, or approximately 2 million children, are physically handicapped.

Dr. Wishik—That term, "physically handicapped," needs defining. From the medical viewpoint, a child is considered handicapped if over an appreciable period he is prevented by a physical condition from full participation in childhood activities of a social, recreational, vocational, or educational nature. For purposes of medical care, handicapped children are ordinarily classified by diagnoses. The school medical administrator, however, recognizes that the school needs a method of grouping which is related to the modifications which are feasible in the school systems. For most situations, four categories usually suffice: first, the children with visual defects, second, those with hearing deficiency, third, those with speech difficulties, and fourth, those with a locomotor difficulty or a general health condition, such as heart disease.

Dr. Mackie—What do you include under the term "general health condition"?

Dr. Wishik—We include among handicapped children those with an internal health disturbance such as diabetes, kidney disease, asthma, or heart disease, when the condition is severe enough to necessitate limitation in the children's activities. Although such children often do not receive the same degree of attention, they are just as effectively handicapped as is the child who carries a crutch.

Dr. Mackie—You would say, then, I assume, that from a medical point of view children with locomotor difficulties may be grouped with those who have certain other health conditions. This point of view is significant in planning for special classes. For example, it seems practical from the standpoint of school administration to place cardiopathic children and children with orthopedic conditions in the same classes where the aim is to provide a protected environment which affords such facili-

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ties as transportation, accessible lavatories, or a shortened schedule.

Dr. Wishik — When, however, special services such as physical therapy are offered to children, there may be reason for separating them from the children who are not receiving such special services. Does this jibe with your philosophy on segregation of handicapped children, Dr. Mackie?

Dr. Mackie — I am very glad you asked that question and that you asked it in just that way. It gives me a chance to say that we do not like the word segregation or the meanings now commonly attached to the term. We regard special classes as a form of special service. It is a positive rather than a negative thing.

When one is inclined to object to a special class, it is well to consider the alternatives. For severely handicapped children, these alternatives usually are exclusion from school, enrollment for home instruction, or attendance in a school not prepared by facilities or personnel to give the child adequate help.

Let us see what some of the special classes provide for handicapped children. Many units for crippled children offer physical therapy and, occasionally, occupational therapy. When such services are provided, the children are under specialized medical supervision, closely coördinated with the school program. The special school or class may also provide other features such as adjusted housing and equipment, nourishment, transportation, rest facilities, special guidance, and parent participation. Examples of special equipment are desks, tables, or chairs designed or adjusted for individual pupils. For cerebral palsied children there may be cut out tables, relaxation chairs, and adjusted instructional materials such as typewriters and large pencils. Such materials and equipment are tools for both the teachers and the therapists.

A program of special education should be a flexible one. It should consist of services scaled to meet varying needs. Our schools are making an increasing effort to enable handicapped children to attend school. When this is not possible, we are trying to take the school to the child wherever he may be—in the hospital, in the convalescent home, in the residential school, and, when no group plan is possible, in the child's own home.

The majority of these children should eventually be assimilated into the regular classes, although many of them will still need adjustments and guidance. Special classes in day schools are somewhat parallel to hospitalization. When a child's best development can be attained in this setting, then he should have it. But he should remain in such a group, just as he would remain in the hospital, only so long as intensive and specialized care is essential to the furtherance of his education and total growth.

For some children, such as the partially seeing and those with certain hearing defects, schools often have divided programs. Under this plan, the child receives from his own special teacher appropriate help by adjustment in instruction and in materials or by speech training or lip reading. At the same time, he spends part of his day in the regular class.

The divided program is likewise in effect for some handicapped children in regular classes. In many places, itinerant teachers going from school to school work with groups and individual children, especially those with speech defects.

Dr. Wishik — The divided program can also be applied to children receiving physical therapy. In this way, the services of the physical therapist can be extended to a larger number of children than would be the case if she treated only those in special classes. Using a divided program makes it possible to

plan for specialized personnel such as physical therapists on an uninterrupted basis while retaining flexibility of transfer of children from one placement to another within the school.

In attaining this flexibility, another difficulty may occur. When a doctor has a sick child under his care, he is interested in protecting the child from the exposures and hazards of a full program of school activities. He is often reluctant to permit liberalizing the child's program. He may, for example, object to the pupil's being transferred from a special to a regular class. Do you find this tendency in the educational field, too?

Dr. Mackie — Yes. School personnel are likewise often reluctant and upon occasion even resistant to this fluid movement from one type of school setting to another. They may, for example, prefer not to admit a child to a class when he has been on home instruction.

School people are sympathetic to the problems of the handicapped, but they are frequently fearful in planning for them because they do not understand the medical implications and sometimes do not know what help the medical people can give them. Each time the school makes a new adjustment for a handicapped child, such as moving him from home instruction to a class, the school increases its responsibility.

Dr. Wishik — This challenges the school health service to give the school staff a better understanding of medical matters. For one thing, the teacher would feel more confident if she had more information on health problems. To be sure, an orientation in health problems benefits all teachers in all classes, but needs even greater emphasis in classes for the handicapped. Here, the teacher has a group of children, each one of whom has a definite physical limitation. In her daily work she must think more definitely in terms of health problems than does a teacher in a regular class. Therefore, the teacher of a special class for the handicapped should have more than the average amount of information about health problems, particularly those related to the special group she is teaching.

The teacher has opportunity throughout the school day to make health observations, even of a rather subtle kind. She can recognize changes in conduct and activity of a child from one day to another. Her observations should be utilized. In addition to giving her special training so that her observations are more meaningful and better understood, it is important that we develop techniques whereby her observations are passed along to the school health service.

Dr. Mackie — Often, the teacher is shy and hesitates to send such information to health people. But if she can get medical interpretation following her referral, she is then in a position to do many things to carry forward the doctor's recommendations. The teacher is likewise stimulated to give greater attention to health problems when she knows that her observations are being given consideration.

Dr. Wishik—Yes, and the school health service should indicate to the teacher in the special class the kinds of observations which she might make and the ways in which she might record and report them. Among the many ways in which teachers and health service can get together and make most effective use of the formers' contributions are through the use of health record forms. Record forms are only a device, it is true, but they do have informative value and they can exert a strong cementing influence on the participants in the program.

In many school health services at the present time, in addition to the health records kept by the health staff, the teacher in each home room keeps a health card for each pupil. On this card

are listed such observations as listlessness, easy fatigue, etc. These items and other specific items should be placed on a special kind of teacher observation card in each type of special class. The special items in a class for visual handicaps would differ from those in a class for instance where children are grouped because of severe cardiac conditions or orthopedic handicaps. For the visually handicapped children, there would naturally be more items about the eyes, such as, rubbing the eyes, squinting, tilting the head, or failure to wear eyeglasses.

In the class for children suffering from general health conditions, more items would relate to poor food intake, disinterest in games, or frequent absences. In the orthopedic class, the teacher and the physical therapist, if there is one, could note whether the student wears his brace or uses his crutch as directed by the physician.

As the teacher develops greater skill in making and recording her observations, she will more readily recognize the indications for referring children to the school health service. In a class containing cardiopathic children the teacher would recognize such danger signals as feverishness or apparent pain. In the class for the hard of hearing she would refer a child at the first sign of a head cold.

In short, I would make a plea for special preparation of the teacher of exceptional children with emphasis upon the types of handicap included in her class.

Dr. Mackie — Standards for the education of handicapped children, as for all children, are set by state departments of education and by local school systems. State-wide programs for exceptional children, including the physically handicapped, are moving forward rapidly. As of January, 1948, 32 states, the District of Columbia, and the Territory of Hawaii each reported one or more staff members in state departments of education carrying responsibility for education of such children. The number of states providing this service more than doubled in the period of 1940–1948. Some states have already established minimum qualifications for teachers of exceptional children.

To meet the needs created by this growing program, many colleges are giving attention to the orientation of all teachers to the problems of exceptional children. Certain colleges and universities are offering comprehensive training in the education of children with locomotor disabilities, the deaf and hard of hearing, the blind and partially seeing, speech correction, and other areas. As the supply of teachers approaches the demand, it will then be possible to require that more special training be superimposed on the usual teacher qualifications. For example, the course for a teacher of the crippled would probably include: (1) general orientation to the handicapped; (2) a survey in orthopedic conditions (with clinical observations) presented by a medical staff; (3) organization and administration of special schools and classes; (4) adjustment in methods and curriculum; (5) psychology; and (6) guidance and adjustment of the physically handicapped.

The fact that we ask the teachers to meet such qualifications does not mean that they will be able to, or should, make medical decisions or recommendations. The physician usually describes the kind of limitation and the kind of placement he believes essential, and then the school tries to put the child in a situation which will fit this as nearly as possible. Teachers understand rather well that no program of special education for the physically handicapped can proceed without continuing recommendations from proper medical authorities. Such recommendations should be carried out.

Dr. Wishik—Yes, but in order for medi-

cal and school people to collaborate in setting up an adjusted program for a given handicapped child, they must be able to talk each other's language. May I refer to a similar problem which arose in industry during the war when procedures were developed for fitting the worker and the job to each other. The physician submitted a report, not as a medical diagnosis, but in terms of the physical capacities of the employee, such as climbing stairs or lifting weights. The factory personnel manager for his part made an analysis of the job in terms of the physical demands which were made upon the worker, rather than merely labeling him as a machine operator or a shipping clerk. A common denominator of physical activities was thus found for describing the worker in both reports.

Similarly, for the school child, it is not enough for the doctor on the one hand to give a diagnosis of "curvature of the spine" or for the school on the other hand to report to the physician that the child is receiving "adaptive physical education." A physician's written recommendation for "limited physical activity" is meaningless unless the forms which are used in passage between school and physician define the term, "limited physical activity." His recommendation will become meaningful if the physician is given opportunity to illustrate what he includes or excludes in his recommendation.

For this purpose, the form should list in specific detail activities which take place in the school and should group them under headings, such as perhaps, "normal activity," "no competitive games," "restricted participation," or "avoidance of academic pressure." Under the headings would be listed such items as, "setting up exercises," "dancing," or "swimming."

The physician can then check a leading group like "no competitive games" as one votes a straight political ticket or he can split his vote and object to any individual activities listed. To permit full democratic process, there should be blank spaces for either the physician or the school to write in additional activities.

It should be made clear that forbidding active participation does not preclude the child's taking a modified role in certain activities. The prohibition of dancing, for instance, helps the teacher to decide on other types of modified participation which she may develop for the student short of complete exclusion.

Of course, the form does not replace personal or telephone communication when these are possible. As a matter of fact the form here described attempts to follow the lines which such communications would most naturally take.

Dr. Mackie — The schools often face another problem. From the physician's report, it is not always possible to know how long the recommendation is supposed to be in effect. A physician may, for example, make recommendation for "home instruction," or he may suggest "a shortened school day." Often, no further word comes from the doctor for a long time, although the physical condition of the child may change materially.

Dr. Wishik — In this connection it is advisable that the medical recommendation and subsequent school placement have limited application in time. In some schools, a recommendation is good for a period of one year. One semester might sometimes be better. Within that maximum, it is hoped that there will be a definitely individualized approach to the needs of each child. If the doctor says that he should see the child within two months, then the school will attempt to get the child back to the physician at that time for a review of status and placement even though it is in the middle of a school semester. A problem which is common among handicapped children is the fact that they are often

subject to repeated illness and hospitalization. What does the school do to attain continuity of educational program for these children?

Dr. Mackie—In some school systems, definite steps are taken to insure continuity of education as the child moves from one school setting to another. Both state and local supervisors of special education are working on this problem. In some communities the physically handicapped child does not as yet have access to all the services he needs—such as school in the hospital or home instruction. This is a problem that remains to be solved in many localities.

Where the necessary variety of services is available, the school records which usually follow the child from school to school help to insure continuity. The trend today is toward a more complete set of records, which will tell something about the social and emotional adjustments as well as academic progress. The academic achievement is given due attention but is not considered the sole objective of a good education program. The most successful special education teachers think of the total development of the child.

Dr. Wishik—In your term "total development," I am sure you include the child's personality. We all recognize that every handicapped child has special psychological problems and emotional difficulties over and beyond those which would otherwise occur in the usual process of the child's development.

Dr. Mackie—I would certainly agree that every handicapped child has occasion for difficulty. Would you think it might be possible for the situation to be so well handled that no significant emotional problem would result?

Dr. Wishik—Well, perhaps that is just a matter of words. We could think of the child who has been well handled as having been helped to adjust to his problem rather than never having had one. The adjustment may have been an easy and a quick one and have left no scar. From the point of view of developing services to meet the needs of handicapped children, I suppose we agree that, by and large, these children are faced with a problem to which we should pay special attention.

Dr. Mackie—At this point I should like to describe one or two trends in special education which are directed toward this very problem. One is the emphasis upon classes for physically handicapped children under age 6. These classes afford a setting for a preventive program which may have far reaching results. This is especially important in the care of the child with cerebral palsy or for a child with a serious hearing loss. A few state laws make it possible for local school districts to receive state aid for the education of certain types of physically handicapped children as young as age 3. These classes for young children, when under the jurisdiction of the public schools, must be staffed by qualified personnel. One of the emphases of the cerebral palsy program in California is in this young group.

New York City's public school for the deaf accepts children as young as 2½ years of age and it gives service to parents of infants suspected of being deaf. One of the features of this school is its program for parents of children in all age groups. Through discussion groups centered in the school, the parents get help from teachers, physicians, nurses, mental hygiene experts, and from each other. Values other than the mere acquisition of facts grow out of parent participation. Fathers and mothers tend to change their attitudes, to lose their fear and feeling of frustration as they come to believe that there is something which they as parents can do to help their children toward good adjustment.

On the other hand, one of the weakest parts of the program for the handicapped, is in the adult and youth group.

Too often we have provided special education for the elementary school child and left the youth or the adolescent to make whatever adjustment he can right at the time when he is thinking of his vocational placement and when social success is so important to him.

Dr. Wishik—And too often we fail to realize the effect upon an adolescent when he has a limp, or a cosmetic defect or when he must wear a brace. The psychological problems of this group are many—but for lack of time I should like to concentrate at this point on the question of vocational planning and guidance for the handicapped child. Not only do we often fail to plan for his future vocation, but even within the school itself there is frequently lack of consistent relation between the child's health condition and his curriculum. I know of one situation in which a child had passed through a school health service, had been seen by a consultant ophthalmologist within that service, and had been labeled as a child with a severe visual handicap. Nevertheless, within that same school the child was placed in vocational activities which required the use of a micrometer. This illustration points dramatically to the need for bringing the health service into the picture when the child is choosing his courses. Even when we recognize the importance of vocational guidance, we usually do so when the child is actually seeking employment at the time of leaving school. It seems necessary for us to go back to the younger age group, perhaps, if we can, even into the elementary grades and at that point try to make an evaluation of vocational possibilities for the child in the light of his known handicap.

Dr. Mackie—We must consider the child's abilities and in the light of them learn to what degree his handicap restricts him from pursuing his normal interests. At the time the child is about ready to enter junior high school a closer working relationship between health services, vocational rehabilitation, and education would contribute to a wiser choice of school and of school subjects and would undoubtedly lead to better vocational adjustment.

Dr. Wishik—I should like to see established in schools where there are handicapped children, and this means all schools, some special vehicle, such as a conference for the specific purpose of vocational planning for handicapped children. Each child who is known to be handicapped should be considered periodically at such a conference. Attending the conferences might be representatives from the health service, preferably including a physician who is a specialist in the field appropriate to the child's handicap, an educator, a vocational rehabilitation agent, other vocational counselors, a medical-social worker, and possibly the parents. The adolescent child should take an active role in the planning.

The conferences could be organized into groups in different ways, for one, on the basis of medical diagnoses, so that a specialist such as an ophthalmologist or orthopedist could give consideration to a number of children at each session.

Dr. Mackie—While it may seem a little time consuming to do this, undoubtedly many hours of professional service would eventually be saved. A conference directed toward vocational adjustment is only one example of the importance of coördination of services all through the program.

We cannot take the child apart and treat him in sections. We cannot treat a muscle or educate a brain and have as an end product a well adjusted individual. It is only through the intermeshing of medical services, education, guidance, and parent effort, together with the direction of the individual himself that a well adjusted person can be expected.

Gathering and Evaluating Accident Data with Respect to Farm People and Farm Workers*

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MOST agricultural establishments are very small, keep no records of accidents, and are not required by law to report accidents to any governmental organization. Complete enumerations are expensive, so sample surveys are ordinarily resorted to. Mail surveys appear impractical because of the unmeasurable selectivity of response; a farm operator who has himself experienced, or one of whose family or hired workers has experienced, a disabling or expensive accident during the reporting period is much more likely to return a questionnaire than is a farmer whose family members and work force have escaped serious injury during the reporting period. Therefore, accident information has been obtained by interviewing the operators of a representative sample of farms throughout the United States.

The sampling methods used were a combination of area and list sampling. Because of the importance of very large farms and ranches in the Mountain and Pacific states as employers of labor and producers of livestock and crops, it was decided to sample large farms at a considerably heavier rate than other farms. A list of farms which were considered to be large on the basis of total areage, acres harvested, number of cattle, number of sheep, or value of products sold was obtained from the Bureau of the Census and used as I shall describe later.

The 3,000-odd counties of the United States were grouped on the basis of type of farming area into 400 strata having approximately equal numbers of farms. An individual stratum did not extend across state lines except in the Mountain states, where state lines were disregarded. In the process of stratification, the larger sub-type of farming areas were divided into contiguous groups of counties, whereas some of the smaller sub-type of farming areas had to be combined to form a stratum. From within each stratum two counties were selected at random. Within the sample counties small segments containing an average of five farms were delineated on highway maps. So far as possible natural boundaries, such as roads or streams, were followed in outlining the segments to make identification easy.

The interviewers used were local people with farm backgrounds. Each interviewer was ordinarily responsible for two counties. He or she was instructed to interview the operators of all farms on the large-farm list within the two counties and those of all farms with headquarters located inside the sample segments. To make sure that no farms were overlooked, the interviewer was required to sketch the outlines of all

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farms or non-farm tracts of land either on an aerial photograph of the segment or a separate sheet of paper. To make sure that personal judgment would play as small a part as possible in the decision as to whether or not a given farm was to be included in the sample (i.e., whether or not its headquarters was located within the segment), a rigid scheme for determining what point should be considered the farm headquarters was prescribed. In case the farm operator lived on his farm, his residence was considered to be the farm headquarters. If he did not live on the farm, but there was a residence on the farm, that residence, or in the case of more than one residence, the most valuable residence, was to be considered the farm headquarters. If there was no residence on the farm, then the only, or most valuable building, was considered to be the headquarters. If there were no buildings, the main entrance to the farm was considered to be the headquarters. In the absence of a main entrance, the northwest corner of the farm, defined as the westernmost point on the northernmost border, was considered to be the headquarters. This scheme covers every possible situation. To make sure that it is followed, a Farm Identification Sheet is used on which each farm or tract of non-farm land located within the segment is listed on a separate line and identified by a number corresponding to the number given that farm or tract on the sketch. The designation of the headquarters, and its location inside or outside the segment, is recorded on the Farm Identification Sheet, together with a notation for each farm with headquarters within the segment showing whether or not a schedule was obtained. If no schedule could be obtained because the operator was not at home, a check-sheet containing enough information to give some idea of the nature and size of the operations was prepared on the basis of conversation with neighbors or other informed persons. This check-sheet information was of some help in expanding the schedule information into absolute estimates.

The face sheet of the schedule was used primarily for recording information to identify the farm. The accident section itself consisted of a battery of 14 questions, only the first 3 of which were to be asked on every farm irrespective of the answers obtained. These 3 questions were designed to identify farms whose residents or workers had been involved in lost-time accidents during the reporting period. An answer of "yes" to any one of these questions meant that question 4 had to be asked, while an answer of "no" to all three questions meant that no accident had occurred, so that no further question needed to be asked. Question 4 is what is called an open question in that it asks for a general answer in the farm operator's own words rather than asking for a categorical answer to a specific question. The interviewer is to record in the blank space below the question a brief account of the cause and type of accident and the extent of the injury. An example might be — "Operator's mother slipped on ice on back steps and broke hip. Steps had no handrail." The respondent in the course of his narrative ordinarily answers a good many of the questions 5 through 14. The interviewer records such answers in the appropriate places without asking the questions again, asking only the questions whose answers have not been volunteered in the course of the narrative. In case more than one person was injured, or the same person was injured more than once, the questions from 4 on are asked about each person injured or each accident.

The biggest deficiency of this battery of questions has been that in a fairly large fraction of the cases the underlying cause of the accident, as fatigue, carelessness, error in judgment, struc-

tural defects, etc., cannot be determined. It may be possible to frame a specific question which will obtain this information in the majority of cases. Another technique which has not yet been tried but which we are now considering would be to write a letter to the operator asking him for additional information about the accident and its causes.

Few previous misconceptions have been shattered by the results of the two surveys for which the analysis has been completed. On the other hand, general impressions have been confirmed or modified by these first objective nation-wide surveys of non-fatal as well as fatal accidents. I should like to present a few of the findings from the April, 1948, survey, which covered the first four months in 1948.

During that period, over a quarter million people who were living or working on farms were injured seriously enough to lose at least one day's time from their regular activities. The cost of medical, dental, and hospital care exceeded 11 million dollars, and the total time lost was over 6 million days, including no allowance whatsoever for the time lost by persons who were fatally injured or permanently and totally disabled.

Medical, dental, and hospital expenses averaged just over $40 per person injured, or about $52 per person injured if accidents involving no cost are excluded. The average cost per accident was much higher in the Northeast than elsewhere. The average cost of medical care increased with increasing age. There was no significant difference between the average cost of this care to males and to females. Accident and workmen's compensation insurance played a relatively minor role in defraying medical costs. About 17 per cent of the accidents involving known costs were covered by insurance, and the insurance paid 21 per cent of the costs. Coverage was much higher in the north central region than elsewhere, with 31 per cent of the accidents and 34 per cent of the costs covered. In the South only 7 per cent of the accidents and 11 per cent of the costs were covered.

The average amount of time lost per accident was about 22 days, or just over 3 weeks. Differences betwen regions were slight; only in the West was the average amount of time lost per accident significantly different from the United States average. Almost half of the accidents reported resulted in a week or less lost time, while only about 1 out of 7 involved more than a month.

Twice as many farm people were injured in falls as in any other type of accident. Falls on the ice were more numerous than any other type of fall, but falls on stairs, from vehicles, from structures, and from home furniture led to significant numbers of serious injuries. The next most common type of accident involved animals, with horses and mules responsible for half these accidents, and cattle other than bulls for a third of them. Very few accidents involving bulls were reported. Motor vehicles were involved in 1 accident out of every 9, with passenger cars responsible for 70 per cent and trucks for over 25 per cent of that number. Trailers and motorcycles accounted for the rest. Machine accidents were the fourth most common type, amounting to about 10 per cent of the total. Tractors were by far the most dangerous machines during this 4 month period, accounting for 30 per cent of the machine accidents. Among the hand tools, axes were the most productive of serious injuries, accounting for 4 per cent of all accidents, as many as falls on the ice or accidents involving cattle other than bulls, and a half more than tractors. Injuries resulting from the handling of heavy objects, stepping on or striking against sharp objects, and getting in the way of falling trees and lumber also bulked large in the total, amounting in aggre-

gate to 13 per cent of all accidents. Some 10 per cent of all accidents were so incompletely described that classification into any of the 9 major types was impossible.

Over two-thirds of the accidents occurred on the farm, with one-sixth happening in the house, about one-fifth in other buildings on the farm, and 30 per cent elsewhere on the farm. One-ninth were on the road or street, almost one-fifth were elsewhere off the farm, and the location of about 2 per cent of the accidents could not be determined.

More than 40 per cent of all accidents involved farm operators; about 45 per cent happened to members of their families; 7 per cent happened to hired farm workers; and a somewhat smaller percentage involved other persons. During this 4 month period, about 20 operators out of every 1,000 were involved in a lost-time accident. Comparable accident rates were 12 per 1,000 for hired farm workers and 7 per 1,000 for members of operators' families and others. The accident rate for hired workers is probably understated, as non-work accidents of hired workers not living on the farm were incompletely reported. Over two-thirds of the accidents to farm operators and hired workers happened while they were doing farm work, but only about a third of the accidents to family members were associated with farm work. Almost a third of the accidents that involved members of operators' families were recreational accidents.

About 49 per cent of all accidents were the result of farm work, 18 per cent of the total occurring while the injured was doing chores, and 31 per cent while he or she was engaged in other farm work. Only 5 per cent of the accidents were associated with housework, while 16 per cent happened in the course of recreational activities and 30 per cent while the injured person was engaged in some other or unspecified activity.

More accidents occurred in April than in any of the three earlier months, primarily as a result of greater farm work activity. Accidents occurring while the injured person was doing farm work other than chores increased 50 per cent in number from March to April. Chore accidents increased even more, due probably to greater haste and fatigue on the part of persons working long hours at other farm work and to a shift of chore work from farm operators and hired farm workers to members of the operator's family who are apparently more likely to have accidents because they are less familiar with the operations involved. Accidents associated with other activities were no more numerous in April than in March. As would be expected, the locations in which accidents increased in number from March to April were in the barn or other buildings and elsewhere on the farm, the two locations in which the bulk of the farm work is done. By types, the increase was distributed among accidents involving hand tools, machines, animals, burns or shock, handling objects, falling objects, and stepping on or striking against objects.

A number of additional inferences have been drawn from the data collected in the April survey. Copies of the preliminary report based on the survey may be obtained from the Bureau of Agricultural Economics.

A good many other types of things could be done with accident data which we have not done with the April survey. We have not computed accident rates in terms of accidents per 100,000 people by sex, age group, or status on farm. We have not computed machine accident rates per 100,000 hours of operation of each type of machine, or per 100,000 of each type of livestock. We have made no attempt to compute the accident rate per 100,000 hours in a given activity, as housework, chores, or other farm work. Given adequate supplementary

information, all of these things could be done.

I have mentioned one type of bias in accident information reported to interviewers, that is, the tendency of the more distant accidents and the relatively minor accidents to be overlooked. Another type of bias arises from the fact that when information for an entire enterprise or household is reported by one individual, he tends to report those accidents which impressed themselves on his consciousness because they happened to him or to someone close to him more nearly completely than other accidents which made little impression on his consciousness because they happened to people in whose welfare he had somewhat less interest. In our surveys to date, for instance, it seems probable that accidents to members of other households on the farm have been less adequately reported than have accidents to members of the operator's household. This particular category of bias could be reduced by interviewing a member of each household on the sample farms. The question is, Would the increase in completeness be worth the cost of the additional interviews?

In addition to such reporting biases, there are other qualifications which one must remember when comparing accident rates in different industries or of different sexes or members of a family. For instance, if one day's lost time from the regular activity of the injured person is the minimum criterion for a reportable accident, an injury to a housewife and mother will probably have to be much more serious to be reported than one to a factory worker, because the homemaker feels forced by circumstances to carry on her regular activities despite considerable disability, whereas the factory worker may be encouraged to take time off until the disability ends. Somewhat the same considerations may force the farm operator to stick on the job at reduced efficiency, particularly if he has no hired help and no family members in a position to be helpful. Even within a single industry, differing policies in different individual establishments may result in non-comparable accident statistics, for at one establishment a workman with a given injury may be sent home from work while in another establishment he may merely be shifted to another operation where his injury will not interfere so much.

Without intending in any way to undersell accident statistics, I must admit that all of these qualifications make it imperative that the would-be user of such statistics have a thorough understanding of the definitions, personnel policies, economic and sociological situations, sampling methods (if any), and methods of collection involved. In short, as in any other statistical field, accident statistics cannot be accepted uncritically. The mere fact that a statistic appears to be definite because it is quantitative does not mean that it is a simple representation of fact.

Development of an Educational Program on Sanitation in a Typical Food Industry—The Baking Industry*

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THERE is no need, in speaking before a group of this character, of discussing a detailed historical development of modern concept of sanitation. However, when we come to think of sanitation as it now applies to the food processing industry, we must recognize that with the passage of the Federal Food, Drug and Cosmetic Act of 1938, there began a wide extension of previous concepts. This extension goes into the realm of the esthetic as distinguished from purely public health requirements. By this is meant that modern-day sanitation, as it applies to food producing establishments is also concerned with the prevention of the inclusion of abhorrent materials such as the debris from insect life and rodent life, that is not necessarily connected with disease. For example, in modern-day flour handling practices, it is necessary to provide means for eliminating the common conveyor and elevator infestation with flour beetles and similar organisms so as to prevent their being macerated and the body fragments distributed throughout the cereal products manufactured with the flour.

Maintenance of good bakery sanitation is not only the vital and essential public health operation that it is in other food industries, but it is also a definite public relations operation. There is no question but what the general public would find abhorrent any product manufactured by an industry which admittedly permitted the inclusion of large numbers of insects or their body fragments into their finished products.

When the development of an adequate sanitation educational program in the baking industry was inaugurated in December, 1945, it was with the recognition that not only must the public health features of sanitation as applicable to bakeries be brought to the attention of the industry but also that a better appreciation of this public relations factor should also be brought before them.

Consideration was given as to which agency within the baking industry might undertake this program. Some twenty-five years ago, there was founded the endowed institution known as the American Institute of Baking. This institution was set up primarily for the purpose of conducting purely educational programs and undertaking purely scientific investigations for the betterment of the industry in general. It therefore appeared natural that the Institute should be the medium for disseminating information in this field. Experience gained since, has justified this decision for it has been possible to organize a Sanitation Department at the Institute which could devote full-time to this problem alone.

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ORGANIZATION OF THE BAKING INDUSTRY SANITATION PROGRAM

In thinking of the problem of getting an educational program started in a food industry, some thought must be given to the make-up of the industry—economically and socially. The baking industry is a very interesting one, for it varies from large nation-wide organizations operated like other impersonal corporations to the small neighborhood bakery operated by a single family, much of whose stock in trade is the personal relationships between the customer and the owner-operator family.

Briefly, the baking industry consists of wholesale bakers, multiple retail bakers, and local retail bakers. The wholesale bakers in turn are divided into wholesale bread, wholesale cake, wholesale pie, and wholesale specialty bakers of many kinds. The multiple retail bakers usually manufacture all of these lines, as do many of the wholesalers. The retail bakers usually manufacture all of the lines, but the emphasis at the retail level, including the multiple retailer, is upon cakes and sweet goods rather than upon bread. Due respect must be given to the small baker of bread, but there is no question but what the major quantities of bread consumed in this country are manufactured by large wholesale bakeries. The largest concern in the baking industry has well over a hundred large establishments, some so large that a number of individual units do a gross business of several millions per year.

It was decided first that an educational program should be undertaken to disseminate information already available from the operation of the Federal Food, Drug and Cosmetic Act under the Food and Drug Administration. At this time it was recognized that there are four levels of individuals working within the baking industry which must be reached by this educational program. These are:

1. Management—Ownership
2. Key Technical Men (either General Managers or Production Managers or Sanitation Directors)
3. Individual Production Employees
4. The Janitorial or Sanitorial Staff (those engaged in actual cleaning of the bakery)

The most important of these four segments is undoubtedly the first, or owner-management, for these people within the industry must be convinced of the value and wisdom of a sanitation program in order to obtain adequate funds and an adequate personnel organization within the different concerns to carry out any program at all. Most of the difficulties in the establishment of a sanitation program within the baking industry have resulted from a failure to convince this level of the wisdom of expending the necessary funds. Regardless of how drastic such actions may have seemed, the activities of the Food and Drug Administration in enforcing the federal law have had a salutary result in convincing a large segment of industry management of the value of sanitation. This group will recognize without going into too great detail the long existent controversy or difference of opinion between regulatory officials regarding the advisability

(1) of using educational methods only and (2) of using regulatory action only on the part of a law enforcing agency.

It is our conviction in the industry that there is a positive need for direct firm action on the part of regulatory officials in enforcing sanitary requirements against that segment of industry that is loath to devote adequate funds to the development of better conditions within their plants. Let us grant that government educational programs are needed, but we have seen many instances in which strict regulation is necessary. Just recently, in a large city, several instances were seen where, at the behest of the city health department, bakers had purchased the newest modern

design of machinery, so designed that it could be cleaned readily and, in fact, get soiled only to a minimum degree by production operations. However, these machines were being installed in plants that were literally filthy. No attempt at regulatory action had ever been made, for it was felt that, because these firms were willing to purchase new and modern designed machinery, they were so progressive, that regulatory action against them would be harmful. It is our conviction, viewing from an overall industry betterment angle, however, that such firms are more inclined to purchase new machinery for the economic advantages than for the advantages of better sanitation. We do not advocate repressive measures on the part of regulatory agencies, but we do believe that alertness and prompt court action in the case of unwillingness to be truly sanitary, is an essential feature of government health programs. Such action can never, of course, be taken by bakers' associations or advisory groups. It has to originate from governmental agencies. We sincerely hope that any representative present from such agencies will carry back with him the thought that industry as a whole is not unsympathetic to their activities. The industry wishes to see sanitary codes enforced fairly and honestly, but thoroughly, where needed.

A large number of articles have been written by the American Institute of Baking on the fundamentals of sanitation and published in trade journals getting primarily into the hands of bakery management. Wherever possible, we have had speakers before bakery management conventions. Sad to say, we feel we have not been too successful. One of the best illustrations of this is the remark made by a prominent bakery executive when told that a representative of our Institute would speak on bakery sanitation at a forthcoming convention: "If those fellows don't stop coming down South here from Chicago to talk to us about that damn subject, we all might as well give up our business. Pretty soon, our consumers will learn all about it and then they won't buy any of our product." We are trying our best to combat this ostrich-like feeling, for we are convinced that the public relations value of a thoroughly sanitary industry are much more on the positive side than the negative.

SANITATION SCHOOLS OR COURSES

Second, after our first efforts had been under way some ten months, we found that there was a widespread need in the baking industry particularly, for the spread of detailed information regarding plant sanitation methods. Our answer to this need has been the establishment of special schools or short courses. Owing to the diverse make-up of the baking industry, it has not been possible to bring large numbers of people from different sections of the country into Chicago. Attendance at a school, even of a few days' duration, means that the men attending must be away from their shop production, and the more time that can be saved for them the better. We therefore have established a system of giving regional schools or short courses throughout the country. To date, twelve have been given or planned through 1948. The last was given in Boston in September. These courses undertake not to give the final word, but to give the details of the problem with as many of the answers as can be given in the few days available, so that personnel attending the course will be able to take back to their plants at least a proper appreciation or evaluation of the different factors of what they are up against, and have some guide as to further study of more details.

Subjects covered in the order of their importance are:

1. Those subjects relating to the management of production operations, and building and plant maintenance, which will eliminate the

causes of rodent and insect infestation and bacterial contamination of the finished products.

2. Then, with a recognition that no matter how careful we may be, there will always be a casual rodent or insect invasion of even the best of plants, measures are discussed which will enable the baker to set up permanent safeguards against such casual invasion, together with the methods needed for ridding the bakery of any infestation that might develop regardless of measures adopted to prevent it.
3. The subjects include also such special features as what we term "preventive fumigation," "organization of janitorial service," "training in personal hygiene practices among bakery employees," "the biology and life history of rodents and insects," "fundamental bacteriology," and the like; but emphasis is laid upon practical application.

It has been our experience that in bringing together trade groups for short courses, the greatest possible emphasis must be placed upon visual education methods. We have, therefore, gone to great lengths and expense to prepare working models of bakery equipment. Wherever this has not been possible, we attempt to show graphically on charts just what is involved. The old pedagogical method of the professor standing in front of the audience and more or less reading to his students is definitely taboo in any bakers' school.

Obviously, our presentation has improved from course to course. We started out at first by bringing in representatives from all sorts of industries and public health organizations to discuss how they cope with the problem. However, we have now found that it is more effective if the subject matter is kept down to the details of interest to a baker, with as many practical applications as possible. Therefore, for the future we are planning our courses with a "faculty" of five only, all but one being on the Institute's permanent staff.

The type of individuals that have been attending these courses includes the production manager, the sanitarian, or chief of maintenance of the baking plants. These men carry the message back to their owners and general managers, but we find that sometimes they are faced with the problem of not being permitted to go ahead with what they have learned because top management has not been convinced of the economic advantages. Again, as was said, before, we are convinced that our primary problem is to convince top management of the need of spending money for better plant sanitation.

The third level for an industry educational program involves the individu[illegible] employees engaged in production. [illegible] level in our opinion is the secon[illegible]t difficult one to reach. However, [illegible] a very important one. A concrete example of why this is so was observed recently. The vertical mixing machines used by many cake bakeries have three speeds. In using these, it is possible for the operator to press a button and turn on the machine at the maximum speed of 120 r.p.m. at the start of operations, or in turn, he can start the machine by pressing one of three buttons which sets it in motion at 60 r.p.m., then pressing a second raising it to 90, and a third finally to 120, as the mixture being worked upon begins to become more homogeneous in character. In a great many bakeries, an observer watching this process in action will notice that when the operator turns on the high speed immediately, there is considerable loss by splashing, which not only loses dough, but renders the immediate vicinity of the machine very dirty. Proper training of employees in their sanitation responsibilities would take cognizance of this type of procedure and teach them the reasons for proceeding gently, not only from the production standpoint, but also from the sanitation standpoint. In other words, effort must be made to train industry employees in a food establishment in the proper operation of their machines for each individual job, so that they will contribute

at a minimum to the general insanitary picture.

It is difficult to set up a procedure for meeting this type of need. Our own program at the present time is devoted solely to the issuance of posters, in which each particular job is analyzed and the sanitation features of proper procedure are brought to the attention of the employee. In addition, it is planned to encourage the holding of individual plant or company schools for the purpose of discussing these factors and setting up better appreciation of individual jobs on the part of that concern's own employees. However, this is essentially meeting the problem at the company level rather than the industry level.

Before passing on, however, it might be well again to consider further the subject of sanitation posters. It is our conviction as a result of our experience that posters are best devised when they will appeal to the individual employee on an emotional basis, in that it will tie in with a recognition of his job as an important one. To meet this requirement, we have devised posters which always carry a picture of a baker doing something. The figure on the poster is garbed in traditional baker's costume. We have found, that our little "Joe Doakes the Baker" figure carries an emotional value comparable to the well known comic strip figures. To add to this appeal, each poster is given a descriptive title, such as "Give Bugs the Brush-Off," "Store Flour Safely," "Make a Clean Sweep," "Keep 'Em Dying," "Signs of Danger." The attempt is made to keep these on a commonplace conversational basis so that they will attract attention, so that when seen across the room, the employee will be inclined to read the poster. We also try to key up the individual posters with characteristic seasonal operations, such as the statement "It's Weevil Time," or "Rout the Rodents," so that when they see a new poster, they may be inclined to inquire, "Well, what does that have to do with the other ones?" Color schemes are very valuable and, last but not least, an attempt is made to tie in the concept of sanitation as meaning better business and the implication of a better remuneration and consequent security to the individual as a result of paying attention to these sanitation suggestions. Our posters have emphasized the points of inspection of ingredients and applicable methods for residual and contact sprays in insect control. We have also issued posters that outline the salient points in trapping for rodents, in looking for the signs of rodents, the things to look for when mice leave evidences of their presence, and the typical rodent harborages that employees know about, so that they will eliminate them whenever possible on their individual responsibility.

The fourth level of education involves the training of the porter, janitor, or sanitary staff of the individual plants in details of their work and efficiency of operation. These men must be taught how to do their job properly as a result of proper experimental effort. There have been so many advances in the fields of detergency, and personnel efficiency, that these can be outlined with distinct advantage, to the cleanup staffs of any food plant establishment. The work of getting this information across must undoubtedly be undertaken through the medium of company or plant training courses. As yet, in our program, we have not had an opportunity to develop this type of plant training course, but we are contemplating doing so shortly. There is a wealth of material available upon which such courses can be based. In fact, there is no doubt but that many present in this group are familiar with it. The point to be made at this juncture, however, is that the baking industry itself does not know it. It is up to industry sanitation advisers to bring such material to the attention of indus-

try. This is a primary function of an educational program in this field.

COÖPERATION AMONG FOOD INDUSTRIES IN CARRYING OUT SANITATION EDUCATION

Early in our program, it was recognized that other industries had also had a wealth of experience in the field of industry-wide sanitation education. With simultaneous recognition on the part of many of these industries, there was formed a group now known as the National Committee of Food Sanitarians, with headquarters in Chicago, consisting in membership of industry sanitation advisers only. This group now numbers approximately thirty industries, with one or more men from each industry, as active members of the committee. Information and organization of sanitation programs are pooled among the members so that, for the betterment of all in disseminating correlated advice, there will be a sound food industry advance in sanitation rather than a sporadic advance in leaps and bounds by individual industries. By this is not meant that there is any force applied as to how any one industry should conduct its own program. All information pooled is purely voluntary. Such a pooling of the education program is vital, for it has been found that the voice of many, speaks with much more authority than the voice of a few. For example, recently, conclusive evidence was developed that the practical use of the rodenticide "1080" in food plant establishments was developing in the wrong direction. In our own baking industry, "1080" was found to be distributed almost indiscriminately in bakeries with cups of this violent poison in solution form placed directly upon flour sacks, on overhead beams where it could fall into the finished products, and with a multitude of other misuses. As a result of concerted effort, it has been possible to interest government authorities in the inauguration of a fundamental research program for the development of newer and safer rodenticides than "1080." Previous interests on the part of the government have only been to examine carefully all poisons proposed. Each company engaged in the manufacture of chemicals that might develop into rodenticides was constantly proposing newer and better rodenticides, primarily from the interest of finding new uses for chemicals already manufactured by them. The feeling of this group of nation-wide food industry sanitarians has been that there is real need for government to undertake to do fundamental research to locate and find safe, as well as adequate, rodenticides which could take the place of "1080."

IN-PLANT TRAINING OR EXTENSION SERVICE IN SANITATION EDUCATION IN THE BAKING INDUSTRY

In recent months, it was found that there is a widespread need for detailed training in methods of inspection as well as in remedial methods in the baking plants, with regard to sanitation problems.

For this reason, the American Institute of Baking, as part of its education program, has now set up a bakery inspection training service. Experienced government inspectors have been engaged on a full-time basis as permanent employees of the Institute, totalling at the present time, between 40 and 50 years of government enforcement experience, ranging from that of ordinary inspectors to that of an administrative official. Thorough inspections are made of any plant applying for this service on a cost basis, the plant being charged a per diem rate, figured to cover all overhead, and the cost of subsistence and travel. The initial inspection of from 2 to 5 days covers the plant with a thoroughness of detail never previously experienced even when covered by the same inspectors engaged in government service. An analysis is made of what-

ever sanitation program the plant has previously installed; the plant is rated numerically as to its relative sanitation level and a program recommended for bringing the plant up to whatever higher level management desires, this level being in all cases equal to or higher than that of mere compliance with the Food, Drug and Cosmetic Act requirements of freedom from filth-contaminating influences.

Following this initial inspection, a series of three or four inspections are made throughout the year in order to evaluate the extent of progress in raising the plant's level of sanitation.

The response of the baking industry to the offer of this service has been most appreciative. For the first three months of its existence, only one inspector was employed, but before the end of this period, it was evident that it was necessary to have at least two more, and it is anticipated that in years to come, we will possibly double or treble the amount of service we are now offering.

SUMMARY

In closing, it might be well to summarize briefly our concept of what we have found to be an adequate industry program.

First, it must reach each of the four basic levels of the various diverse types of firms of the industry. The two most important of these being:

1. Management, who must be convinced of the necessity of providing funds.
2. The individual employees of the industry who must be trained in the performance of their production functions with a minimum of development of insanitary conditions.

Second, experience has shown that the pooling of experience and general information with other poor industries has proved a tremendous asset.

Finally, it is necessary also to establish a direct industry contact for the purpose of developing fundamental knowledge of the problems of sanitation incident to one's own individual industry.

Rhode Island Cash Sickness Compensation Program*

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IN other countries, even in the early days of social legislation, temporary disability insurance programs preceded other types of social insurance. This has not been so in the United States but there is little doubt but what it would have been so had it not been for the extensiveness of unemployment which provided the impetus for the passage of the Social Security Act in 1935. Even at that, it is difficult to understand why this Act did not make any provision for the protection of workers who become unemployed through sickness or disability, as it did for those who become unemployed due to economic factors.

In 1942, Rhode Island undertook the passage of the first piece of legislation in the United States to provide a form of disability insurance, protecting those workers whose unemployment was caused by sickness. This legislation is known as the Rhode Island Cash Sickness Compensation Act.

As you well know, we have had in Rhode Island and in other states, disability insurance in the form of Workmen's Compensation programs which among other things protected workers against unemployment due to accident or occupational diseases. In addition, in Rhode Island and in other states, since 1936, we have had unemployment insurance programs which protected workers in part against unemployment wage losses due to economic factors. Between these two, there remained a gap which has been closed in part by the Rhode Island Cash Sickness program, providing further protection to groups of workers not included in either or both of the other programs, but who too suffer wage losses through unemployment caused by illnesses other than occupational diseases or accident.

The Cash Sickness program was set up so that there would be no exclusion because of age or because of the type of disability. Every worker employed by a firm which is subject to the Rhode Island Unemployment Compensation Act is automatically covered by the Cash Sickness Act, unless, and this is the only exception, he prefers to be exempted because of a religious affiliation which depends for healing upon prayer or other spiritual means. It might be interesting to note that up to the present time we have affidavits from some 39 persons who have claimed this type of exemption.

There were many factors other than the consciousness of the need and the logic of the situation which had a very direct influence on the adoption of this Cash Sickness program in Rhode Island. Among these are included the existence of the Unemployment Compensation program and the very substantial size of the Unemployment Compensation Trust Fund at the time; the requirement in the Rhode Island Act of an employee tax in addition to an employer tax; and the concerted efforts

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on the part of interested groups to effect a merit rating or employer tax reduction on the one hand, and the liberalization of the benefit structure or an employee tax reduction on the other hand.

From this, evolved the decision to establish this Cash Sickness program and to finance it by diverting 1 per cent of the employee tax from Unemployment Compensation to a Cash Sickness Fund which would be used for the payment of benefits under the Cash Sickness program. At no time has there ever been any employer tax used to finance the Cash Sickness program, and as a matter of fact, there has never been any real effort to have such a tax included.

It is not too difficult, therefore, to appreciate why the Cash Sickness Act provided that this program would be administered by the same agency which was administering the Unemployment Compensation program, namely, the Unemployment Compensation Board. In addition to this matter of being administered by the one agency, there is much more which these two programs have in common. There are very certain and definite advantages which result from the extent to which these programs are coördinated. At the same time, it should be recognized that they are not exactly identical and in a few respects at least they require a different approach. In our efforts to realize the advantages which come from close coördination, we have learned in Rhode Island that proper measures must be taken to insure avoiding the disadvantages from a failure to recognize the distinctions which exist in the two programs.

In order to be eligible for Cash Sickness benefits, any claimant must meet certain minimum requirements. In the first instance, of course, he must file his claim and all such claims during the entire claim process are handled by mail. On this claim form is indicated certain information relative to his unemployment, the onset of his illness, and whether or not he is receiving or has filed for Workmen's Compensation. This claim form must be certified by the claimant's attending physician who is required to supply information relative to his diagnosis and the extent to which the illness or disability prevents the claimant from performing his usual or customary work. While physicians are not held to an exact time limit on the duration of the claimant's illness, it is necessary that there be indicated in the first instance the probable number of weeks that the patient might be incapacitated. This, of course, is reviewed by a medical director to insure that there is indicated a reasonable duration of the illness.

Just as is the case with the Unemployment Compensation program, there are certain eligibility requirements in the Cash Sickness program. In the first place, the worker must have earned at least $100 in covered employment during his base period which, in Rhode Island, is the calendar year preceding the benefit year, beginning in April. These earnings of $100 will entitle him to the minimum weekly benefit rate which has been established, namely $6.75. If his earnings during the base period equal or exceed $1,800, he would then be entitled to the maximum weekly benefit amount allowed, namely, $18. Whether he is entitled to some weekly rate between $6.75 and $18 depends entirely on his earnings during the base period mentioned. The number of weeks he will be allowed to draw benefits cannot exceed 20 weeks, and again depends on the amount of credits he has compiled in his base period, divided by his weekly benefit rate.

With employment conditions as they are today, and the increase which has taken place in the average weekly wage since the establishment of these benefit rates, it is not difficult to appreciate that the great majority of claimants are entitled to the maximum weekly benefit.

The average duration of benefit has been approximately 9 weeks.

At the end of the probable duration of benefits which was originally certified, the claimant is disqualified unless there is additional information which indicates that he is still, because of illness, unable to perform his regular or customary work. This information is obtained either from the attending physician or from a physical examination performed by a physician designated by the agency, or as the result of a field visiting program, or perhaps in some selected cases from all three sources. If, on the basis of this information, it is determined that the claim shall be no longer allowed, and the claimant feels aggrieved thereby, he is given every opportunity to pursue an appeal, first to a referee, then to the Unemployment Compensation Board, and from there, in some cases, to a Board of Review. In the last analysis, a further appeal can be prosecuted from there to the courts.

You will observe from the time of the original certification, during the entire process of appeal, and up to the final determination, the certification and the assistance and advice of physicians are factors without which the system could not function.

We might look for a moment into the actual operations of the Cash Sickness program to see the extent to which workers are calling upon the program for help. In the beginning, it should be appreciated that because of its industrial characteristics, Rhode Island would not have been selected as the most desirable testing ground. Besides being densely populated and very highly industrialized, it has a great diversification of industry, with textiles, machinery and tools, and jewelry as its three major industries. There has always been in employment a much larger number of women than in most other states. Women have averaged 40 per cent of the working force and have approached 50 per cent particularly during the war years.

Herein, as is normally expected, lies to a considerable extent the poorer or non-selective risks.

What is equally apparent is that the period 1942–1945 would not have been selected as the most appropriate time to conduct such a test or actually undertake such a program as we did. The demands of the war program brought into industry older workers and women in great numbers. Such movements in and out of the labor market of persons having no genuine attachment to the labor market resulted in abnormal payments consistent with the abnormal conditions.

During this same period, our annual disbursements in the form of payments so greatly exceeded our income that the Fund itself was seriously threatened. At one time, in 1946, but only for a year, it became necessary to increase the employee tax to 1½ per cent, to help offset this heavy drain on the Fund. The critics of the program were quick in their attempts to attribute this financial predicament to the excessive malingering which allegedly was rampant. While admitting that this program, not unlike any other private or public insurance program, has had and will continue to have its worries in combating malingerers and fraudulent claims, I must say that this was by no means a significant cause of our financial ills. Rather, the load stemmed primarily from the authorized payment of benefits to three groups not originally encompassed.

You will recall that the Cash Sickness law originally provided for payments only to those persons suffering a wage loss through illness. However, during the period of financial difficulty, this original concept was extended to permit payment to workers who continued to receive wages or salary during periods of illness and to workers who received Workmen's Compensation. These two

changes, coupled with the more significant authorization to pay benefits in pregnancy cases, resulted in expanding the program considerably beyond its original scope and beyond the original estimated rate of expenditure. This made necessary a corresponding adjustment of the tax base.

But let us get back to the types of claims filed. In general, it can be said that the claim load (exclusive of those groups just mentioned) continuously displays characteristics not unexpected and quite consistent with the general morbidity and industrial pattern throughout the state. Whether it be age, sex, industry, or medical diagnosis, sample studies show the expected relationships.

Of course, again you must bear in mind that payment in pregnancy cases tends to distort greatly what would be normal findings. For example, in the distribution according to age there was the highest concentration of claims in the 20–29 age group. Thirty-one per cent of all claims were found in this group. Yet, if our system excluded payments in pregnancy cases, the size of this group would revert to normal since approximately one-half of all claims in this age bracket were for pregnancy.

A recent sample study produced additional interesting data. The ratio of claims of industrial workers to the total claim load bore a close relationship to the ratio of industrial workers to the total working force. This same characteristic kept reappearing in other groupings, such as age, sex, marital status, and industry or business.

It was further revealed that 65 per cent of all claims analyzed fell into four major categories of illness: 22 per cent were for pregnancy; 18 per cent for injuries or the ill effects of poisoning; 14 per cent for diseases of the digestive system; and 11 per cent for diseases of the circulatory system. The remaining 35 per cent were distributed among eleven other types of illnesses, with 7 per cent shown as suffering from diseases of the nervous system and sense organs, including mental disorders.

Again, of the claims analyzed, 57 per cent were filed by females. Of that 57 per cent, four-fifths were married. The average age of all claimants was 39 years, with the 45 year average for males 10 years higher than that for females. Only 20 per cent of the male claimants in the group were under 30, while nearly one-half or 49 per cent of the females fell into that age group, again due to pregnancy cases.

The number of cases analyzed was necessarily small, yet it has been sufficient to provide some interesting data, and it is felt that larger cross-section studies will not do great damage to the ratios and characteristics mentioned above. In any event, this analysis might serve to focus your minds on the extent to which the morbidity data accumulated offer a challenge of enormous importance to public health activities, especially to those concerned with prevention, rehabilitation, and the general subject of geriatrics.

We might further ask ourselves what happens to the person in the older age group who is disabled and who has exhausted his disability insurance benefits? Or, if you will, what of that same person who may not be covered by the program? What of the high percentage of claims during pregnancy? And what of the pregnant wives of men who contribute to this system of disability insurance but who themselves (the wives) are not covered by the program? To what extent is our program improving or can it improve the health of workers? To what extent are its benefits being used as financial relief to low income families from the added burden of medical expenses. These are certainly matters for conjecture and study, since this whole program of social insurance, particularly disability insurance, is one of local and national importance.

In studying this program, we should not lightly skip over other significant factors. Should temporary disability insurance of this type be coupled with a maternity benefit program? Should it be extended to cover a program of medical care? Is it logical to extend payments to persons who suffer no wage loss or who may be receiving other compensation such as Workmen's Compensation?

Let us not forget either the vital part played by the medical profession in the administration of this program. Its very backbone is medical certification, advice, and counsel. It is a real challenge to the individual practitioner, as a professional man maintaining his role of assistance to the individual, while at the same time assuming his responsibility to society. On the determination of whether he can or will fulfil this dual role rests the future of such a program.

While the Cash Sickness program in Rhode Island is out of the early experimental stage, having been in operation for 6 years, it is hoped that it will never be out of the research stage. There is a constant effort to improve the plan and to improve the system and administrative structure through which it is carried out. Since its original passage, many changes have been made and no doubt more are contemplated.

In any event, Rhode Island has provided experience for other states adopting this type of social legislation or considering its adoption in the near future. California and New Jersey already have systems in operation. Ohio, Washington, New York, Illinois, and others are investigating its possibilities. From the fact that so many representatives of these states have come to Rhode Island to observe the organization and administration of disability insurance, there is evidence that our experience with the plan is considered worthy of study. As always in a pioneer endeavor, errors have been made. And again, as always in a pioneer endeavor, we regret that some other state was not first to provide Rhode Island with its experience so that we might have profited by its trials and errors. However, Rhode Island workers have been given a measure of protection during illness at a time when it is most needed, and social legislation thereby is moving another step forward.

1949 Ricketts Award

Dr. Ludwig Hektoen, Professor Emeritus of Pathology, and Dr. Russell M. Wilder, formerly Chairman of the Department of Medicine, University of Chicago, received the 1949 Howard Taylor Ricketts Award. The awards and medals were presented on May 23, 1949, at exercises held at the University of Chicago Clinics. At this time Dr. Wilder who is now head of the Department of Medicine, Mayo Foundation, delivered an address entitled "The Rickettsial Diseases: Discovery and Conquest."

Dr. Ricketts in whose honor the award is made, first established the presence of specific organisms as the causative agents of the group of diseases now known as the rickettsial diseases—Rocky Mountain spotted fever, rickettsial pox, and others.

Tuberculosis in a School for Mental Defectives*

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THIS paper is a report of the results of a tuberculosis control program in the Newark State School for mental defectives, during the twelve years from 1936 to 1948.

This school, located at Newark, N. Y., is one of the 27 institutions of the New York State Department of Mental Hygiene. It has a population of about 2,700 patients, all mentally defective, about 40 per cent classified as morons, 45 per cent as imbeciles, and 15 per cent as idiots. Most of the patients remain in the school for prolonged periods of time and have limited contact with the outside, though some have occasional short vacations at home. Because the patients live in such close contact with each other, it is assumed that one open case of tuberculosis can spread the infection to most of the inmates living in the same ward. Whatever contact exists among patients in different wards is comparatively casual and is due to work in the kitchen, laundry, or elsewhere. It is obvious that coöperation of many of the patients in observance of even the simplest sanitary measures is at best limited.

The buildings of the institution are divided into two main groups, with 13 wards in each—one group for about 1,400 female patients and the other for approximately 1,300 male patients.

METHOD OF STUDY

The method of the study has been as follows:

1. All patients in residence in February, 1936, were tuberculin tested and the reactors x-rayed. Three doses each of O.T. and PPD were used.

2. In April, 1937, all previously negative reactors and new admissions since February, 1936, were tested with an intermediate dose of 0.00025 mg. PPD and all patients who reacted then or had reacted in February, 1936, were x-rayed. After April, 1937, all admissions and previously negative reactors were tested every 6 months and those giving a positive reaction for the first time were x-rayed. Because the use of two PPD tests was considered impractical, and in order to avoid an excessive number of strong reactions with a single second strength dose, the "intermediate" dose of 0.00025 mg. was used throughout the study after February, 1936, both for the initial tests and the retests.

3. Subsequent to April, 1937, all reactors were x-rayed each year, the males in April, and the females in October.

4. Beginning in October, 1938, all new patients were routinely x-rayed on admission. All employees were x-rayed at that time, and routine preëmployment x-ray examination was begun.

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

The residence of each inmate, by wards, has been recorded, including any transfers, however brief, from one ward to another, so that the history of exposure to infectious tuberculosis within the wards is known and the patients have been classified accordingly. A patient was considered as having been exposed to infectious tuberculosis if he was in residence for a minimum of one month in a ward in which a clinically significant case of tuberculosis was present. Subsequent to such exposure, the patient was included in the exposed group for the remainder of the study.

Since laboratory data, such as the results of examination of sputum, laryngeal smear, and gastric contents, were unavailable in the vast majority of cases, the diagnosis of tuberculosis was made almost exclusively from x-ray examination on 14″ x 17″ celluloid films. On the basis of roentgenological characteristics, cases were classified as clinically significant or apparently cured. Due to these limitations, revisions of initial diagnoses have been made in some instances, on the basis of subsequent x-ray evidence. For example, during the course of the study some cases which had been originally classified as having apparently cured tuberculosis were later found to have active disease, while others which had been considered active were reclassified as apparently cured. Some who had been considered as having tuberculosis, were later classified as cases of non-tuberculous pulmonary disease. The difficulties in establishing a definite diagnosis from one or two x-rays alone can be readily appreciated. However, it is felt that after twelve years' experience during which there has been opportunity not only to examine the patients periodically by x-ray, but also to observe them clinically and, in some cases, to have post-mortem confirmation of the diagnoses, the present figures can be considered as reasonably accurate.

The original plan was to isolate all cases of clinically significant tuberculosis as soon as they were detected. During the first few years of the study, however, facilities for isolation of infectious cases were very inadequate, so that segregation of these patients was far from complete. Although there was considerable improvement in this respect beginning in October, 1938, even after that time segregation was not complete, first, because almost invariably there was at least one unisolated case which had developed or reactivated during the interval between examinations, and second, because a considerable lapse of time often occurred between the diagnosis of tuberculosis and the patient's removal to the tuberculosis ward.

RESULTS

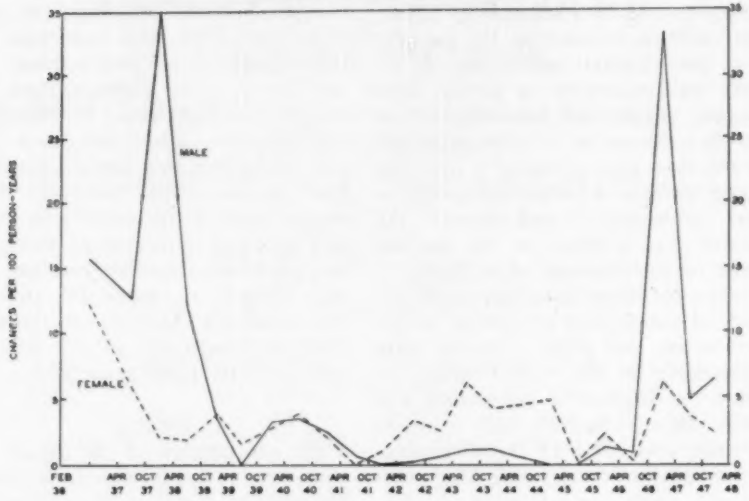
For the purpose of this report, the study may be divided into three periods. The first period was one of comparatively high incidence of infection and disease extending from the beginning of the study in 1936 to 1939. The second period lasted for about 7 years, until late in 1946. During this time opportunities for infection were materially decreased, resulting in correspondingly low levels of tuberculous infection and disease. The third period began in 1946 with the accidental introduction of one case of infectious tuberculosis into one of the buildings in the male division of the school and the consequent marked increase in tuberculin conversions and in cases of tuberculosis among the inmates of that building.

First Period—1936–1939

At the beginning of the study the prevalence of tuberculin reactors was high—52 per cent among males and 71 per cent among females. The prevalence of clinically significant tuberculosis was also high, especially among the females, 3.4 per cent of whom had x-ray evidence of clinically significant tuberculosis.

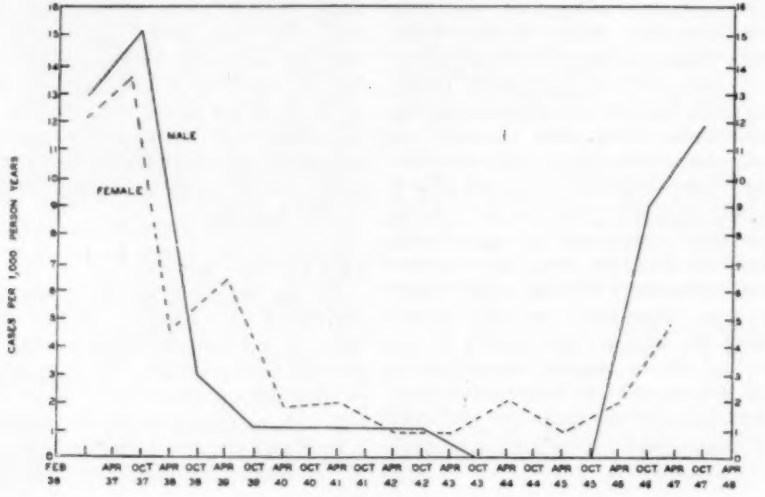
GRAPH 1

INCIDENCE OF CHANGE FROM NEGATIVE TO POSITIVE TUBERCULIN REACTION AMONG INMATES EXPOSED TO AN INFECTIOUS CASE IN NEWARK STATE SCHOOL



GRAPH 2

INCIDENCE OF CLINICALLY SIGNIFICANT TUBERCULOSIS BETWEEN X-RAY DATES AMONG INMATES EXPOSED TO AN INFECTIOUS CASE IN NEWARK STATE SCHOOL



Among the males the rate was 0.7 per cent.

During the 3½ years following the first survey, that is, during the first period of the study, the incidence of infection was especially high among males exposed to cases of tuberculosis, where the tuberculin conversions reached a peak rate of 35 per 100 person-years between October, 1937, and April, 1938 (Graph 1).* The conversion rates among the non-exposed patients were very much lower, although here, too, peaks were reached for both males and females between October, 1937, and April, 1938.

The incidence of new cases was also high during the entire first period, among both males and females in the exposed group. Among males, the maximum rate of 15.2 per 1,000 person-years was reached in the period April, 1937–April, 1938, while among females, a similar peak rate of 13.5 per 1,000 person-years was reached between April and October, 1937 (Graph 2).*

These high rates are probably due to two factors: first, the number of infectious cases found at the beginning of the study was high, and second, their isolation was not as prompt and complete as would have been desirable. This was particularly true for the female group. As for the male group, there was the additional factor that in the summer of 1937 a new boys' hospital building was opened, resulting in a sudden influx of transfers from other institutions and in the reallocation of old inmates.

Among the patients not known to be exposed to a case of clinically significant tuberculosis, only two cases developed during this first period, both diagnosed in April, 1939, in one ward of the male division.

Second Period—1939–1946

By 1939, when isolation of cases had become more nearly complete, a drop in the incidence of both infection and disease became apparent. Low rates prevailed from 1939 to 1946, so that during these 7 years only 4 new cases developed among the males and 11 among the females in the exposed group, as compared with 12 among the males and 28 among the females during the preceding 3½ year period. The rate of incidence of new cases during this second period (1.1 per 1,000 person-years of observation) was almost 90 per cent lower than the rate during the first period (8.7 per 1,000 person-years). There was a corresponding drop in incidence of change in tuberculin reaction.

Third Period—1946–1948

A sudden change in this situation occurred in the period October, 1946–April, 1947. The tuberculin tests made in April, 1947, showed that, instead of the two or three conversions which were usually found on the semiannual visits, there were 107 male patients who had become reactors since the previous October, the rate of change being 33.2 per 100 person-years in the exposed group as compared with a rate of 1.1 during the preceding 6 month period. X-ray examination of the positive reactors during that same month showed that 9 new cases of clinically significant tuberculosis had developed among males in the exposed group since the previous April, or a rate of 9.0 per 1,000 person-years.

Of the 107 tuberculin conversions, 87 were found in the boys' hospital building, and 8 of the 9 new cases of tuberculosis were found in that building. Investigation of this unusual development revealed that one patient, who had been removed from the tuberculosis ward in 1945 and transferred to one of the three wards in the boys' hospital building because he was considered to have appar-

* Tabulations of data used in the graphs and of other data to which references are made in the text have been omitted from publication to conserve space.

ently cured tuberculosis, had reactivated, and even developed positive sputum in 1947. Further investigation revealed that this patient had been working in the linen room, attending occupational therapy classes and movies and "helping around the wards" so that he had had ample opportunity to be in contact, not only with his ward-mates, but also with the patients in the other wards of the same building.

As a result of this experience, in April, 1947, all reactors in the boys' hospital were again x-rayed the following October, and 5 new cases of tuberculosis were found among them. The next examination of the entire male group, which was made in April, 1948, revealed the presence of 8 additional new cases, for a total of 13 cases in the male exposed group in the 12 month period April, 1947–April, 1948, or a rate of 11.8 per 1,000 person-years. It is very likely that still more cases will be found when the results of the semiannual survey completed in October, 1948, are known. Altogether, a total of 22 cases had occurred among the male patients in the 2 year period between April, 1946, and April, 1948, and 16 of them had been nonreactors up to October, 1946.

Study of the wards of residence of these 22 male patients revealed that 16, or 75 per cent, were living in the boys' hospital building to which the positive sputum patient mentioned above had been transferred. This building houses approximately 30 per cent of the institution's entire male population. Five of the remaining 6 boys were co-residents in another building with a patient who had been incorrectly classified as having apparently healed tuberculosis. No history of recent contact could be established for the last case.

Between the end of 1946 and April, 1948, 5 new cases of tuberculosis developed among the female patients. Four of these had a history of exposure to cases of clinically significant tuberculosis within 1 year, while in the other case the known exposure was nearly 4 years prior to diagnosis.

The experience of the exposed group is in marked contrast to that of the unexposed, as shown by the fact that subsequent to 1939 only 1 case, diagnosed in 1945, was found in the latter group.

SUMMARY AND CONCLUSIONS

The results of the first 12 years of a tuberculosis control program in an institution for mental defectives are discussed. The program has been characterized by three distinct periods. The similarity of events of the first and third periods, during which there were infectious cases of tuberculosis unsegregated, seems to indicate that the presence of even 1 case of infectious tuberculosis can result in a great increase in the incidence of both infection and disease in a very short time, and in the establishment of a chain of exposure and infection which is difficult to break. This is particularly true for individuals in a circumscribed environment such as the one in this study.

The experience shows that even when conditions for the control of tuberculosis are unusually favorable, constant, close supervision is essential to prevent the rapid spread of the disease among contacts. It also suggests that patients in such an environment would provide a suitable group for observation of the effectiveness of BCG vaccination.

Trimming the Tuberculosis Register*

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TUBERCULOSIS case and contact registers tend to grow to unwieldy dimensions. Frequent and persistent trimming is therefore essential to efficiency. The first statement will be readily admitted by tuberculosis administrators. The second warrants some elaboration.

The writer has long believed and still believes that—in addition to dropping suspects who after a relatively brief period of observation appear to be nontuberculous, and those contacts whose exposure has ceased and who have had a reasonable period of observation—there is also a rather large category of patients classed as apparently cured to be considered. It is his belief that this last group may be included safely among those to be discharged and not followed further.

If this is a sound premise the adoption of such a procedure yields the following benefits:

1. The nurses concerned are relieved, since they are freed to follow more needy patients.

2. Private physicians tend to be more coöperative with the tuberculosis workers if they know that patients' names are not routinely throughout life kept on the register for follow-up. They will listen to chest specialists but the specialists must follow a down-to-earth policy.

3. The taxpayer benefits.

4. Finally, in many instances the patient is pleased to know that he need no longer report to the clinic. Undoubtedly some patients are over-treated and tend to become neurotic invalids; so that discharging such persons should help rebuild their morale.

It goes without saying that an apparently cured patient will occasionally have sputum that is positive on culture. This is likely to be in connection with an upper respiratory infection, and may be temporary in nature. It is true also that a few reactivate. However, in the author's experience, these individuals are usually quick to consult physicians, having become tuberculosis conscious.

It must be remembered that a considerable proportion of tuberculosis patients who reach the stage where they can be classified as apparently cured have never been aware that they had clinical tuberculosis, and that they show by x-ray examination no more evidence of disease than do a good many of those healthy people whose lesions now-a-days are revealed only by mass x-ray surveys.

What is an apparently cured case? In the 1940 edition of *Diagnostic Standards* the following requirements were laid down: absence of constitutional symptoms, sputum, if any, negative by concentration, x-ray lesions stationary and apparently healed—these requirements to have existed for two years under ordinary conditions of life. Whether the new *Diagnostic Standards* will adopt more rigid requirements or whether the term "apparently cured" will be retained is not known to this writer.

* Presented before the Epidemiology Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 11, 1948.

In order to test the validity of the premise that apparently cured patients may safely be discharged from further follow-up the writer attempted to secure information from 674 patients discharged as apparently cured between January 1, 1940, and July 1, 1947. Up to October 1, 1948, information was at hand on 459. Of these, 26 had died and 14 had reactivated but are still living. The remainder, 419, or 91 per cent, are well.

Of the 26 deaths, 24 were due to causes unrelated to tuberculosis. The average age at death was 68 and these patients had been followed by the tuberculosis division for an average of 7 person-years. Two of the 26 deaths were attributed to tuberculosis. One of these, a white male aged 64, died of chronic tuberculosis of the kidney and chronic cardiovascular-renal disease. The other, a Negro female, died at 45 of a pulmonary hemorrhage. She had had a minimal lesion, stationary by x-ray for 8 years, which reactivated 3 months before death.

There were 14 additional patients whose tuberculosis reactivated. Adding the 2 who died, the 16 who reactivated averaged 54 years of age at the time of reactivation, the youngest being 29. Fifteen of the 16 were white. Eleven showed minimal lesions at the time of discharge as apparently cured. Of the 14 still living, 6 are now classed as arrested while the lesions of 8 are still unstable. Those who reactivated were followed by the department for an average of 9.1 years per person. These 16 represent 3.5 per cent of the total whose present condition is known.

Finally, 419 of the 459 are living and well as far as the present inquiry could determine. The evidence was collected through the public health nurses and through a mailed questionnaire. While this method of inquiry is not so accurate as that supplied by serial x-ray films and sputum studies, it is of value. Interestingly, a large percentage of those discharged have continued to have x-ray examinations, either privately, in clinics, or by the mobile x-ray unit. The 419, analyzed by stage of disease and time-period observed, show that: the 213 minimal cases were followed for an average of 7.8 years; the 157 moderately advanced for 9 years; the 27 far advanced for 11.5 years; and 22 miscellaneous types for 8 years.

While the evidence presented does not warrant a dogmatic statement, it seems clear that the percentage of reacting cases—3.5—is so low as to warrant a continuation of the discharge procedure. Of course, discretion is needed in discharging patients from further observation. No criteria for selection of those to be discharged can be deduced from this limited number of cases. However, from general experience, one would be more reluctant to discharge patients whose family record suggests high biological susceptibility, young patients, or those with certain associated diseases such as diabetes or silicosis. When a patient is discharged he should be cautioned to seek medical advice if health fails or suggestive symptoms appear.

There is no magic formula for keeping the tuberculosis register up-to-date. One requirement is a physician willing to give the necessary time to scrutinize the register periodically and supplement the information there noted, then in conference with the nurses drop those whose further observation does not seem important from the standpoint of tuberculosis. The information on the register may be supplemented by correspondence, by telephone, or by personal conferences with private physicians and hospitals. This type of work is uninteresting, if not distasteful, to most physicians, but it is necessary if the register is to provide its maximum value.

Poisoning Due to Ingestion of Wax Crayons*

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IT is certainly of interest to public health workers that ingestion of wax crayons may lead to severe poisoning. Poisoning by wax crayons has also an aspect of considerable industrial importance. Its occurrence demonstrates that finished dyes which are practically insoluble *in vitro* are soluble in the body, and not as harmless as described in the literature.

Innumerable children ingest wax crayons. According to crayon manufacturers, many reports of untoward effects have been received, but these complaints were not substantiated; actual poisoning was not reported until 1947. At that time, we described a definite and almost fatal poisoning due to ingestion of wax crayons.[1] Since then, 9 other cases have been published or will be published soon.[2-5] The picture of all cases has been rather uniformly that of acute, severe methemoglobinemia.

So far, four different brands of wax crayons of red-orange, orange, yellow, and violet color have been involved. We have found Para Red in red-orange and orange crayons[1]; an analysis of yellow crayons by the Food and Drug Administration[2] has shown benzidine yellow YB. Both dyes are derived from methemoglobin-forming compounds—paranitraniline and benzidine. Our investigation has concentrated on wax crayons containing Para Red, and on this dye itself.

Para Red was originally produced by coupling diazotized paranitraniline with β-naphthol. This compound has been found to be slightly soluble in water. Hence, the Para Red used in dyeing cotton is now made by coupling paranitraniline with Naphthol-AS or similar amides.[6] The pigment used in wax crayons is, according to one manufacturer, chlorinated Para Red. A sample of this pigment was examined, and also a sample of Para Red provided by E. I. duPont de Nemours and Company, Inc. Both pigments were, as far as we could ascertain, practically insoluble in water, diluted acid and alkali, or in standard solvents with the exception of benzol. Para Red was added to stomach fluid of pH 1.1 to 8.15, shaken in a Waring Blendor, incubated for twenty-four hours at body temperature, and shaken again. After filtering, the fluid did not contain Para Red. The same results were obtained with chlorinated Para Red.

We have not been able to produce methemoglobinemia in dogs and rabbits by feeding wax crayons and Para Red or by injecting concentrated suspensions of Para Red intravenously. However, Dr. Samuel S. Spicer[7] of the Laboratory of Physical Biology, U. S. Public Health Service, with whom we have coöperated in this matter, has observed methemoglobinemia and Heinz bodies in one-third of fasted cats fed red and red-

* Presented before the Industrial Hygiene Section of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 10, 1948.

orange crayons. Four of six cats which had received Para Red in the diet showed methemoglobinemia and Heinz bodies, the other two cats having ingested only very small doses (0.5-0.6 gm.). Intravenous injections of suspensions of Para Red were without effect. Dr. H. Russell Irwin,[5] formerly of the Children's Hospital, Los Angeles, fed yellow crayons to cats and observed methemoglobinemia within 5 hours of ingestion. In comparing our negative results with the positive results obtained by Spicer and Irwin, it has to be taken into consideration that cats respond much more readily to methemoglobin-forming substances than dogs or rabbits.

The findings in human beings and in cats establish the fact that, in a small percentage of individuals, ingestion of wax crayons produces methemoglobinemia and Heinz bodies. The crayons examined so far contain two finished dyes derived from methemoglobin-forming compounds. Feeding of one of these dyes (Para Red) to cats resulted in methemoglobinemia and appearance of Heinz bodies when enough of the dye was ingested. Para Red is practically insoluble *in vitro*; it is apparently free of an excess of paranitraniline, of other intermediary substances or of impurities. We are continuing the study of the mechanism of this type of poisoning.

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NOTE: Since submitting this paper for publication, ten additional cases of poisoning due to ingestion of wax crayons have been brought to the attention of the author; these cases were observed in various hospitals, and practically all of them showed the characteristic picture of methemoglobinemia.

Flinn, *et al.* (The Toxicity of Wax Crayons in Animals, *J. Pediat.* 33:743, 1948) have reported that methemoglobinemia did not result from feeding orange and yellow wax crayons to rats, dogs, and cats.

Administrative Use of Records*

Participants included:

PAUL M. DENSEN, D.Sc., F.A.P.H.A., *Moderator*
MARGARET G. ARNSTEIN, R.N., F.A.P.H.A.
LEONA BAUMGARTNER, M.D., F.A.P.H.A.
EVELYN FLOOK
JOHN W. KNUTSON, D.D.S., F.A.P.H.A.
EDWARD E. SCHWARTZ
FORREST E. LINDER, PH.D., F.A.P.H.A., *Presiding*

The round table was opened with a statement of the question to be discussed, namely: what are the deficiencies in present recording procedures and forms and how may records be made more effective and less burdensome to the people who have to use them?

It was agreed that a primary deficiency of records is difference of philosophy and lack of clear definition as to the purposes they should serve. In general there are three broad uses for records as follows:

1. *Administration:* Records are used to collect information for evaluating and guiding programs.
2. *Research:* Information is collected for making special studies.
3. *Clinical or Individual Use:* Records are used by nurses and physicians for management of the individual case.

Frequently records must serve simultaneously more than one of these purposes. For example, items may be recorded for research purposes on individual case records. Frequently, information for administrative purposes must be obtained from case records.

Many record difficulties arise because the users fail to define clearly the purposes which individual items on a record must serve. Items may be included haphazardly, "in case someone may want them," without much careful consideration of exactly what is needed or why. Persons concerned with case supervision, who are usually the collectors of all types of data, do not understand why certain items necessary for other purposes are included nor are they given sufficient explanation as to what information is wanted or how it is to be used. Items required for research purposes may be left on a record form long after they have ceased to be used. In fact, many record forms are allowed to become archaic because of infrequent review of the purposes for which they are being used. The attempt to secure information for multiple purposes often results in unnecessary complication of forms and procedures.

A first step in improving the effectiveness of records as an administrative tool is study of how programs are to be evaluated. Consideration must be given in the collection of administrative statistics to provide for meeting the evaluation criteria of federal departments and state health departments as well as to provide the more detailed data needed in local administration of the program. In general, all data used for evaluation purposes attempt to measure three phases of the program: first, the extent

* Summary of a report of a round table discussion before a Joint Session of the Maternal and Child Health and Statistics Sections of the American Public Health Association at the Seventy-sixth Annual Meeting in Boston, Mass., November 9, 1948.

Prepared by Marjorie T. Bellows, American Heart Association, New York, N. Y.

of the problem; second, amount and cost of services rendered; and third, the extent to which the services rendered have met the problem. It is the joint responsibility of the administrator and statistician to define precisely the facts needed for evaluation, to design record forms and procedures which will obtain these facts and, in coöperation with field personnel, to try out the forms and procedures to see that they obtain the desired data efficiently.

To provide better records for administrative use the following practical steps were suggested:

1. Precise definition of what data are wanted.
2. Decision as to whether or not the desired information is worth getting in terms of cost, energy required, and utilization.
3. Distinction between administrative and research information. It is very frequently inefficient to try to collect both types of data at the same time.
4. Discontinuation of use of records when they have served their purpose. Two devices were suggested as means of getting rid of records. One was to approve a record form until some specified expiration date when the form must be rejustified. The other suggestion was to discontinue forms of dubious usefulness and see whether or not there was a request for them to be reintroduced.
5. Intercommunication between federal, state, and local departments in defining types of data needed by each.
6. Test studies of the use of all records before they are put into general use.

Negroes Help Themselves

Webster Parish in Louisiana has a population of about 35,000, nearly half of whom are Negroes. Early in 1947 the Parish Health Officer, E. B. Godfrey, M.D., presented to the parish Negroes a picture of Negro health conditions as found by the local health department. The Webster Parish Teachers' Institute decided on a tangible program of health supervision of school children.

During the school year 1947–1948, by an arrangement with the Phillips Hospital at Minden, and by providing bus transportation, 92 per cent of the nearly 3,500 Negro school children in the parish were given medical examinations. Treatment was recommended for 83 per cent of those examined and corrective measures taken for 7 per cent of those needing it.

Forty per cent of the children had throat defects, 30 per cent, nutrition defects, and 20 per cent, defects of teeth—the three most common conditions found.

During the current school year every child is being given follow-up treatment regardless of financial need. Other items in the current program are 100 per cent dental, eye, and chest x-ray examinations, nutrition service through school cafeterias, development of a preschool health service, among others. The next report of Webster Parish Negro School Health Service should be of special interest as a pilot program.

Evaluating A.P.H.A. Exhibits

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THE general purposes of this study were to evaluate the relative effectiveness of the 42 scientific exhibits on display at the Boston A.P.H.A. meetings, November 8–12, 1948, and to investigate some methods for pretesting such exhibits. An attempt was made to measure effectiveness both from the exhibitor's and the observer's points of view.

At times in the past, data on the amount of attention the exhibits attract and the amount of interest they sustain have been submitted as evidence of their effectiveness. Such data were not regarded in this study as evidence of effectiveness, but, rather, as evidence that certain conditions necessary for effectiveness have been satisfied. An exhibit may very well satisfy these conditions while still leaving the observer uninformed, with negative attitudes, or dissatisfied, without any desire to act.

In this study, the measure of effectiveness from the exhibitor's point of view was considered to be its success in accomplishing the specific purpose for which it was designed, whether that purpose was to incite curiosity, to inform, to educate, to elicit action of some kind, or to obtain a list of prospective customers.

CREDITS: This study was made by the U. S. Public Health Service at the request of the Committee on Scientific Exhibits: Franklin M. Foote, M.D., *Chairman*; Paul H. Brown, M.D., Homer N. Calver, Vivian Drenckhahn, Francis B. Elder, Horace Hughes, S. S. Lifson, Willimina R. Walsh. Frank Kiernan acted as an advisory member.

Grateful acknowledgment is made to the 30 A.P.H.A. members who helped in the evaluation and to Prof. Leslie Irwin of Boston University and Prof. Curtis M. Hilliard of Simmons College and their students who participated in the evaluation and served as interviewers.

THE METHODS

Two separate approaches were used in accomplishing the purposes of this study: (1) Interviews were conducted with a sample of A.P.H.A. members and visitors in a public opinion survey; and (2) a group of members and students participated in an evaluation of the success of the exhibits in achieving their objectives as stated by the exhibitors.

Methods used in earlier museum and health education exhibit studies were considered in planning this investigation. Use was also made of the findings of earlier studies in interpreting the results obtained and in outlining methods of applying the data available on successful exhibits to the improvement of new exhibits.*

The Public Opinion Survey

In all, 217 A.P.H.A. members and guests were interviewed. About 80 per cent of these interviews were made in the vicinity of the exhibit hall, but out of sight of the exhibits themselves—at the exits, in the meeting rooms, and in the cafeteria. The remainder of the interviews were made at the entrances to the meeting rooms at Hotel Statler. An attempt was made to select persons at random, but the sample cannot be considered a truly random sample of

* A discussion of the history of exhibit evaluation and the motivational basis of the present approach has been deleted for lack of space.

A.P.H.A. members attending the meetings: persons who did not attend meetings or view the exhibits on Thursday and persons who said they did not have time to participate were not represented in the sample. A comparison of the sample interviewed with the A.P.H.A. members attending the Boston meetings suggests that the sample was nevertheless fairly representative by Section membership.

The interviews with A.P.H.A. members and guests were conducted after the exhibits had been available for inspection 3½ days.

The interviewing was performed by students of Boston University and Simmons College who volunteered their services. Most of the interviewers were graduate students; many of them had had previous interviewing experience. Although only a brief instruction period was possible, internal analysis of the data suggests a conscientious job of interviewing.

Evaluation of Exhibits in Achieving Objectives

As a means of determining how well the exhibits were attaining their objectives, a comparison was made between the statements of the objectives made by the exhibitors and similar statements made by 30 A.P.H.A. members and 20 student volunteers. The members who participated in this work were assigned by A.P.H.A. Section chairmen in proportion to Section membership. The student volunteers were juniors, seniors, and graduate students from Boston University and Simmons College.

A comparison of the responses of students and A.P.H.A. members who carried out this work of evaluating the scientific exhibits served as a test of the reliability of students in evaluating such exhibits.

THE FINDINGS

The Time Spent at Exhibits

As one rough measure of the time spent at exhibits, the sample of A.P.H.A. members was asked the question, "In all, about how much time have you spent so far in going over the exhibits?"

The median time spent as measured by the responses to this question was about 2½ hours or for the 150 exhibits, approximately one minute per exhibit.*

TABLE 1

"In all, about how much time have you spent so far in going over the exhibits?"

	Per cent *
None at all	6
½ – 1 hour	13½
1½ – 2 hours	25
2½ – 3 hours	21½
3½ – 4 hours	11½
4½ – 5 hours	7½
5½ – 6 hours	6½
More than 6 hours	8½
	100

* Percentages are based on the responses of 201 persons who answered the question in the opinion survey on Thursday afternoon.

These findings agree in general with the studies previously carried out by Robinson,[10] Derryberry and Weissman,[7] and Nielson,[17] who have made time studies of persons viewing museum and public health exhibits. In the study of exhibits displayed at the World's Fair, it was found that "the time spent in observing each of the 30 exhibits in the Medical and Public Health Building ranged from 20 seconds to 285 seconds —that is, from 1/5 of a minute to 4¾ minutes. In the Hall of Man which contained relatively small exhibits, the average observation time at each exhibit was only about one-fifth as much as would be required to make a complete inspection of it. In the Hall of Medicine which contained larger exhibits the visitor spent on the average little more than one-twentieth of the time required for a complete visit."[7]

* While the study was concerned with the 42 scientific exhibits, this particular response involved the time spent at all the exhibits present—commercial and scientific. No distinction could be made.

Nielson, who has more recently used a concealed motion picture camera to record visitor behavior in a museum, reports that "statistical analysis of time-of-stay-at-each-exhibit, revealing as it did variations in average time of from 9 seconds to 1 minute, and range of from 5 seconds to 3½ minutes per exhibit, holds great educational implications . . ."[17]

The Exhibits Most Favorably Remembered

The interview schedule used in making the survey of A.P.H.A. members contained five questions which yielded a measure of the exhibits which were most favorably remembered by A.P.H.A. members.

1. What exhibit did you like best?
2. What other exhibits did you find most interesting and worthwhile?
3. Since you have been over the exhibits, have you discussed any of them with anyone? (If *yes*) Which ones did you discuss?
4. This is a list of the scientific exhibits on display. Would you please pick out the one scientific exhibit you found most interesting and worthwhile?
5. Which other 2 of these exhibits did you personally find most interesting and worthwhile?

The first three of the questions used were free answer or direct recall questions in the sense that the A.P.H.A. member was provided with no list from which to make a selection. The last two questions were recognition questions—a list of the scientific exhibits was provided and the subject would select from this list the exhibits he found most interesting and worthwhile.* From the responses to these five questions a score was obtained for each of the scientific exhibits and a comparison could be made in terms of the total score, the score on the recall questions, and the score on the recognition questions.

Six of the 42 scientific exhibits used at the A.P.H.A. offered an opportunity for all visitors to participate by acting in carrying out a personal purpose.† This was in addition to a number of exhibits which offered consultation services to persons with specific interests. Those offering all visitors an opportunity to act in some way in achieving a personal purpose were:

The American Public Health Association Exhibit—"An Exhibit is an Exhibit is an Exhibit"—offered assistance in planning exhibits.

The Brookline Health Department exhibit gave diabetes tests to persons who were interested.

The Massachusetts Department of Public Health exhibit provided an opportunity for visitors to obtain eye examinations.

The Merit System Service exhibit offered tests to visitors.

The National Publicity Council for Health and Welfare Services exhibit invited visitors to take tests and to discuss and obtain health education materials.

The U. S. Public Health Service exhibit offered an opportunity to take part in demonstrations, to discuss jobs in the service, and to obtain and discuss health materials available through the U. S. Public Health Service.

The six exhibits that offered visitors a chance to act in achieving a personal purpose were heavily represented among the most favorably remembered exhibits.

Visitor participation in satisfying a personal purpose was a feature of:

5 of the 6 exhibits receiving the highest recall score

3 of the 6 exhibits receiving the highest recognition score

4 of the 6 exhibits receiving the highest total score (Table 2)

The recall score was considered to be the better of these measures of the success of an exhibit. Recall questions probably yield a truer estimate of what people carry away from the exhibits in their experiences, rather than in their notes

* The exhibits were listed in alphabetical order. Some bias may have resulted from the order in which the exhibits were listed, but the score distribution shows no apparent relation to the order of listing.

† This conclusion is drawn from an examination of descriptions of the scientific exhibits as published in the Official Program, Seventy-sixth Annual Meeting, American Public Health Association, November 8–12, 1948, pp. 71–75.

TABLE 2

The Exhibits Most Favorably Remembered

Exhibits with highest recall score	
* U. S. Public Health Service	43
* National Publicity Council	41
* Merit System Service	25
American Cancer Society	25
* Massachusetts Department of Public Health	20
* Brookline Health Department	17
Exhibits with highest recognition score	
American Cancer Society	68
* U. S. Public Health Service	59
* Brookline Health Department	38
* Massachusetts Department of Public Health	36
American Heart Association	33
World Health Organization	32
Exhibits with highest total score	
* U. S. Public Health Service	102
American Cancer Society	93
* Massachusetts Department of Public Health	56
* Brookline Health Department	55
* National Publicity Council	52
World Health Organization	44

* Indicates that this exhibit offered visitors an opportunity to act in some way in achieving a personal purpose.

and literature. They are most like the questions our friends ask us when we have returned from a convention—"What exhibits did you like best?" Our friends do not have a list of the exhibits for us to look at in giving our judgment. Nor do we normally refer to our notes and literature before we reply.

It was observed that a few exhibits tended to obtain relatively higher scores on the recall questions than on the recognition questions whereas a few exhibits obtained relatively higher scores on the recognition questions. The four exhibits in which the recall score was most disproportionately high and those four in which the recognition score was most disproportionately high were selected for analysis in order to obtain some insight into the features of the exhibits most frequently recalled but not selected from a list as having high merit.

When this comparison is made, it is found that three of the four exhibits having a relatively higher recall score were exhibits in which visitors could participate in satisfying a personal purpose. On the other hand, not one of the four exhibits having a relatively higher recognition score was an exhibit in which visitors participated in this way. There was a tendency for the technically elaborate exhibit to be more often selected from the list and for the exhibit which

	Recall score	*Recognition score*
* An Exhibit is an Exhibit	8	–
Massachusetts Tuberculosis and Health League	11	2
* Merit System	25	9
* National Publicity Council	41	11
American Academy of Allergy	5	17
American Heart Association	5	33
National Tuberculosis Association	3	16
Research Council on Problems of Alcohol	3	13

provided an opportunity for participation to be more frequently mentioned when no exhibit list was available to stimulate the response.

The Exhibits that Were Best Understood

Each of the 42 exhibitors was asked to complete these statements about his exhibit in no more than 25 words:

"The primary objective of our exhibit is . . ."

"The main points we want to impress upon those who see it are . . ."

The 30 A.P.H.A. members and 20 students participating in the evaluation were provided with data sheets and were asked to complete these same statements for each of the scientific exhibits present. They were advised of the purpose of the study, and were asked not to rate or rank the exhibits, but only to complete these statements to the best of their abilities. No time limit was set for viewing any particular exhibit; the data sheets were returned in about 48 hours.

Three of the A.P.H.A. exhibits (National Publicity Council, Merit System, Vocational Guidance) were not included on the data sheets used for this evaluation because they were considered by the A.P.H.A. to be services rather than exhibits. It is significant, however, that the membership interviewed thought otherwise; the National Publicity Council and Merit System exhibits were among those most favorably remembered, as measured by direct recall questions.

A comparison of the exhibitor's statement of objectives and the observer's statement of objectives has been made for each of the scientific exhibits studied. The findings have been presented individually to the exhibitors for their information. This analysis, however, brought out some relationships pertinent to anyone planning a scientific exhibit:

1. Nearly all the exhibits studied served some purposes different from those planned by the exhibitor. In some instances, objectives not mentioned by the exhibitor were most frequently stressed by the observers as the primary objectives of the exhibit.

2. Exhibits with simple, clear objectives were better understood. A close relationship existed between the simplicity of the objectives and the frequency with which they were reported by the observers. Difficult vocabulary and statistics lead to poor understanding.

3. Some exhibits were designed to satisfy purposes of the audience; others were planned to achieve objectives of specific interest to the exhibitor but of secondary interest to the audience. (Example: to promote the name or program of the sponsoring agency.) Exhibits planned to satisfy the purposes of the audience were more successful in achieving their objectives than exhibits aimed toward furthering purposes specific to the exhibitor. Observers tended to interpret the exhibit objectives in the light of their own experiences and wants.

4. The findings of the present investigation suggest that college juniors, seniors, and graduate students can be successfully employed to pretest exhibits designed for professional audiences. Their interpretation of the message imparted by the exhibits were very similar to the interpretations given by A.P.H.A. members.

Suggestions of A.P.H.A. Members for Improving Scientific Exhibits

In the public opinion survey of A.P.H.A. members and guests, the question was asked:

"Do you have any suggestions for making the scientific exhibits more useful and effective so A.P.H.A. members would get more out of them?"

In response, more than half of those interviewed offered suggestions for improvement. (See Table 3.)

About one-fourth of the suggestions offered were concerned with improving the exhibit in some physical way, by putting more life into them through the use of gadgets, visual aids, color, movement, graphs, etc., or by building them to present specific central themes.

Another fourth of the suggestions indicate that many members desire more opportunity for an interaction between the observer and the exhibit. These members ask for better and more active

TABLE 3

"Do you have any suggestions for making the scientific exhibits more useful and effective so A.P.H.A. members would get more out of them?"

Suggestions about exhibit makeup		25%
Should put more life into them by using more gadgets, visual aids, color, movement, graphs, etc.	18%	
Should have central and specific themes	7	
Suggestions concerning greater interaction between observer and exhibit		25%
Should have better and more active attendants	9	
Should have more audience participation	9	
Should offer more literature, samples	4	
Should include demonstrations or lectures	3	
Suggestions about location, spacing, grouping, selection		53%
Should have better location, more and better spacing	26%	
Some other (specific) organization should have had exhibit	9	
Scientific exhibits should be given better and separate location	7	
Should reduce number of scientific exhibits and increase standards	6	
Should have better grouping and organization	4	
Should call them Educational Exhibits	1	
Suggestions about guidance and programs		17%
Should have better maps, directions, signs, etc.	9%	
Should keep time on program open for exhibits	5	
Should have better reception facilities, seats, lounges, etc.	3	
Other suggestions		4%
		*
No suggestions	100	
Number of cases	217	

* Percentages are based on 117 persons who gave suggestions. Percentages add up to more than 100% because some persons offered more than one suggestion.

attendants more opportunity for audience participation, literature and samples, demonstrations or lectures.

APPLICATION OF THE FINDINGS: THE PRETESTING OF EXHIBITS

Pretesting is one means of applying the findings of evaluation to an operating program. It is the positive side of evaluation. It is the one means we have of making immediate use of data collected in earlier evaluation studies.

In the case of exhibits, for example, studies carried out at the New York World's Fair, the study of exhibits at the A.P.H.A. conference in Boston, and the findings obtained in other investigations have provided us with objective data on the characteristics of the more successful exhibits. We can apply these data in testing planned exhibits to determine whether or not it is possible for new exhibits to be effective.

On the basis of such pretests, concrete recommendations for improvement can be suggested, and desirable revisions made prior to displaying the exhibit—in fact, in large part before building the exhibit. At times some estimates may be made as to the probable effectiveness of the exhibit as related to its cost in time and effort.

It is important that this pretesting or preëvaluation be carried out on groups similar to those toward which the educational program is being directed. Persons of different economic, social, and educational levels differ so widely in their experiences and in their goals in life that it is not possible for them to view social situations in the same manner. Professional persons observing an

exhibit designed for a low income group may react in a manner completely different from the non-professional worker for whom the exhibit is planned. Only by testing the exhibit on a group of these lower income persons toward whom it is directed can we be certain that the exhibit is able to put across the message it carries.

Several approaches may be made in evaluating an exhibit prior to using it. The answers to the following questions will yield an operational index to the probable success an exhibit will have in imparting a well understood message to the largest possible audience at a minimum cost per effective exposure.

Is it physically possible to read the exhibit from the point of observation?

It seems obvious that the size of print, adequate contrast of light and dark, the possible obstacles to easy reading or easy observation, the location of pamphlets or other reading materials in the normal focus of attention, etc., can be determined prior to using an exhibit. In practice however, this simple requirement of the possible success of an exhibit is not always met. As a result, exhibits are sometimes displayed in such a way that the audiences cannot successfully follow them even though they might otherwise be inclined to do so.[5, 6]

As a test, the exhibit can be given a trial exposure to a group of laymen. If they indicate in response to a series of questions that they have had difficulty seeing any part of the exhibit clearly, or that they have had to get into awkward positions to view the entire exhibit, revisions should be made.

Attendants should be advised of this problem so they do not permit vases, hats, coats, seated visitors, etc., to obscure the exhibit. If materials are available for distribution they should be placed where they can easily be seen. Materials placed on racks below the exhibit are frequently overlooked.

Does the exhibit sustain interest long enough to be read completely?

Previous studies already cited have shown that few people spend much more than 1 minute at any single exhibit unless the exhibit is especially successful in sustaining interest. An exhibit that does not involve the visitor in some purposive activity is not likely to impart a complete message unless that message can be read within 1 minute.

Prior to completing an exhibit, a test can be made of the time required to observe the exhibit and to read the complete message. A number of lay persons can be timed while they read through the entire exhibit at their normal reading pace.

Is the vocabulary and style of writing used such that the intended audience can comfortably follow and understand the exhibit?

Frequently the terminology and style of writing used in an exhibit is such that only a small proportion of the intended audience can understand the text or labeling. Experts tend to forget that the most frequently used terms in their area of specialty may be completely foreign to persons having a different pattern of education and experience. They may err in attempting to rely on their personal estimates of the level of understanding of audiences of lay persons or persons in other areas of specialization.[2, 5, 6]

Before an exhibit is completed, objective measures can be employed to determine what level of reading ability is required to understand the labels, text. One of several available scales of readability, such as the Flesch Scales[8] may be used for this purpose. The Thorndike word list[22] or some other word list based on the frequency of popular usage or understanding can be employed to locate specific words or terms that may not be fully understood.

Will all graphs, charts, and diagrams be clearly understood by the intended audience?

There is need for more data on the capacity of adult populations to understand graphic techniques used in exhibits. Studies made of school children suggest that children leave grade schools without adequate training in the interpretation of graphs and charts. Since little emphasis is placed upon the interpretation of such media during the high school years, it is possible that even simple graphic techniques may be misunderstood.

Charts, graphs, or diagrams which seem simple to persons with one pattern of experience may have no meaning at all to persons without such experience. This may account in part for the low interest shown by many adults in the graphic health exhibits displayed at the World's Fair.[6]

Diagrams, pictures, charts, figures, objects, instruments, and other materials which are self-explanatory to the exhibitor are sometimes completely unfamiliar to the layman. Failure of exhibitors to realize this has sometimes resulted in inadequate labeling and the use of unexplained materials. Serious errors in interpretation result.

Calver,[2] Cummings,[5] and Derryberry [6] have all emphasized the need for getting the responses of lay persons to charts, graphs, or other visual materials used. This may be done by having a number of laymen view the exhibit and respond to some direct questions about the meanings of different parts of the exhibit. This will assure that all parts of the exhibit will be clearly understandable to the intended audiences.

Does the exhibit tie in with the interests of the visitor and offer him a chance to participate in satisfying a personal purpose?

Findings from a number of investigations indicate that when people have a chance to participate actively in the learning process they learn more quickly. This is especially true when the goal to be achieved is one in which they are personally involved. The needs, values, and purposes people have serve them as filters in sifting out of the environment certain things to see and hear, to remember and to act upon. New information is accepted and new attitudes are assumed when these fit in with and serve personal needs, values and purposes.[2, 4, 10, 16]

These findings are as applicable to exhibits as to other educational media and techniques. The exhibits that attract most attention, sustain interest, and are remembered most favorably tend to be those that provide an opportunity to talk, to discuss problems, ask questions, obtain literature, take tests, or act in some other way in satisfying a personal purpose.

Will the exhibit impart a message that it is desired to impart?

In the present investigation, as in the study of health exhibits at the World's Fair,[6] it was found that the exhibits with a single, clear theme were better understood than those that attempted to cover too much ground. An attempt to present too many or too difficult objectives leads to confusion on the part of some of the observers and indifference on the part of others.

A student or lay group can be used to test the effectiveness of an exhibit in imparting a fully understood message. Observers can be asked to write a statement of the primary objective and main points impressed by the exhibit. These can then be compared with the exhibitor's statement of objectives and main points as in the present study. Care should be taken to assure that the observers arrive at their conclusions independently without direction or influence. Lack of agreement between the exhibitor's and observers' statements

will suggest steps which may be taken to improve the effectiveness of the exhibit in getting its message across.

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THE ACCIDENT-PRONE INDIVIDUAL

THE word "accident" carries with it a strong flavor of unpredictability and causelessness. In its various definitions, Webster uses the phrases: "an undesigned and unforeseen occurrence," "chance, contingency," "fortuitous or nonessential property," "an unexpected happening not due to any negligence or malfeasance."

Accidents of the quality suggested by these terms may occur, as when a house is struck by lightning; but such occurrences are rare. The vast majority of accidents are not in the true sense due to "chance." They are not "fortuitous," but the result of human action (or inaction). They can in large measure be foreseen; and, though not "designed" consciously, they are in a subtler sense determined by underlying trends of human personality.

Furthermore, the qualities which lead to accidents are more often to be found in the subject who suffers from the accident than in the carelessness of some other individual. A bridge may collapse because it was badly constructed. A pedestrian may be killed by a reckless driver without any error of his own. On the whole, however, the major proportion of accidental casualties are victims of their own personality make-up.

This fact has been clearly demonstrated in the case of street accidents. A six year study in the State of Connecticut showed that less than 4 per cent of the drivers involved in traffic accidents were concerned in 36 per cent of all such accidents. The same relation has been clearly shown in industry. A large trucking company reduced its accident rate to one-fifth of its previous level by discovering its accident-prone drivers and transferring them to other occupations, and in their new occupations, these drivers maintained their accident-proneness, though with less serious results. There is no such clear evidence with regard to home accidents; but there can be no doubt that the same basic principles obtain. Helen Flanders Dunbar has characterized the malady from which such individuals suffer as "accidentitis."

Franz Alexander [1] has presented a most helpful analysis of the accident-prone personality. The factors related to this type of individual are not clumsiness or

stupidity or absent-mindedness; but are concerned with much more fundamental traits of emotional make-up.

Dunbar [2] describes the accident-prone individual as "decisive or even impulsive. He concentrates upon immediate pleasures and satisfactions. He is apt to act upon the spur of the moment. He likes excitement and adventure; he does not like to plan and prepare for the future."

A second factor in accident-proneness, of even more fundamental significance, has been indicated by studies such as those of Rawson [3] and Ackerman.[4] This is an instinct of rebellion and resentment, the "show-off" and "don't give a damn" type of psychology. Two cases illustrate this point. "A youth was driving his mother on a shopping tour. He begged her for the use of the car for a fishing party the following day. She refused, whereupon he fidgeted angrily, 'accidentally' stepped on the accelerator and sent the car into a ditch." Again, a 16 year old boy says, "It was really my fault because mother said supper was ready and I was not to go out. I went out anyway, got into a wrestling match and got my arm broken. Anyway, *I guess mother's sorry she's so strict with me.*" These happen to be adolescent cases but, of course, the same feeling of rebellious self-assertion carries on into adult life. The person concerned does not plan an accident; but the psychiatrists say that "most accidents are unconsciously intended," in the sense that the victim is motivated by basic desire for violent action.

Finally, the psychiatrists discern, in many accidents, a still more subtle factor, an underlying sense of guilt combined with the motive of self-assertion—a sense which subconsciously seeks self-imposed expiation. Alexander cites the case of a man who had led a highly frustrated life, complicated by a violent quarrel with his father. He suffered an automobile accident on the way to the psychiatrist's office and when visited in the hospital, bandaged up like a mummy, "all one could see of his face were his eyes, shining with a euphoric light. He was in good spirits, free from the oppressive melancholy of recent days. The contrast between his physical condition and his mental state was striking. The first words with which he greeted me were, '*Now I have paid for everything*, now I will at last tell my father what I think of him.'"

Dr. Alexander closes his paper as follows: "In summary, the accident-prone individual is an impetuous person who converts immediately into action his momentary impulses without deliberation and planning. He harbors a deeply ingrained rebellion against the early excessive regulations of his upbringing—a deep resentment against persons in authority. At the same time he has a strict conscience which makes him feel guilty for this rebellion. In the unconsciously provoked accident he expresses his resentment and revenge, at the same time atoning for his rebellion by his injury."

An important corollary of this new concept of the psychological factor in accidents is the responsibility of the health department in accident prevention. When we thought of the accident hazard as primarily an engineering problem, control of this hazard might properly be assigned to the highway department and the labor department. If, as we now begin to realize, it is most often a problem of human psychology, the health department, with its medical background, is the indicated agency. The treatment of the accident-prone individual may generally be so serious a psychotherapeutic problem as to be far beyond the range of present-day planning. The recognition of such an individual is a much simpler

task; and his removal from the steering wheel of a car, or from the proximity of a dangerous machine would be a fruitful objective for the health administrator.

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SANITARY NEEDS OF THE NATION

AT our Boston meeting last year, Abel Wolman called attention to the fact that we still fall far short of desirable standards in the fulfillment of the elementary needs of basic sanitation.[1] A recent issue of *Public Health Reports*[2] gives a clear quantitative picture of the extent of our deficiencies.

This survey was conducted by a sampling method, covering communities including 75 per cent of the population of the United States. The proportion was over 95 per cent in communities of 25,000 population or more, but graded down to 65–70 per cent in communities of between 5,000 and 25,000 population, to 25 per cent in communities of 500–1,000; and to 12 per cent in communities under 500.

It was estimated that some 80 million people need new or improved public water works; and the figure for new or improved sewage systems is 86 million. Better facilities for disposal of garbage and refuse are needed by some 70 million people. Adding to either of these figures about 30 million persons in rural areas in need of improved water supply and excretal disposal, we get a picture of over two-thirds of the population in which full sanitary ideals have not yet been attained. It should be remembered that the great majority of these needs in cities are for improvement or extension of existing systems; but over 2 million persons live in communities which should have community water supplies which they now lack; and over 6 million people live in communities which should have sewerage systems which they now lack.

The total cost of all desirable improvements is estimated at over 2 billion dollars for water supplies, nearly 4 billions for sewerage and sewage disposal, nearly 2 millions for garbage and refuse disposal, and nearly 2 billions for rural sanitation—$7,834,000,000 in all. By states, the estimates run from $5 millions in Nevada to over $1,447 millions in New York.

Surgeon General Scheele in his introductory foreword points out that this study "represents the first evaluation of our sanitary facilities on a national scale by actual field investigations. Concerted action in satisfying the needs outlined in the report should take us a long way toward providing a safe environment in which everyone may live."

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NITRATES IN RURAL WELL WATERS

OLDER workers in the field of water bacteriology will recall the gradual replacement of chemical analysis by bacteriological examination as a criterion of the sanitary quality of a water supply. Long ago, the uselessness of determinations of "free ammonia" and "albuminoid ammonia" became clear; although too many health department laboratories continued to make such analyses for years after they

had lost any meaning. Those who considered the subject thoughtfully, however, pointed out that the nitrate content of a ground water might still have some significance, as indicative of pollution so remote that colon bacilli might not be found in significant numbers at a given moment but might be present under some other conditions.

In 1940, Schwartz and Rector[1] called attention to the extremely interesting possibility that the nitrates themselves might play an important role in disease causation on their own account and not because of their fecal origin. A series of studies during the past five years has indicated the soundness of this conclusion. In particular, Johnson, *et al.*[2] and, particularly, Robertson and Riddell[3] have made important contributions to this subject. Cornblath and Hartmann[4] demonstrated that when the nitrate content of water is high, the nitrates may be changed to nitrites in an infant having a high gastric pH; and that these nitrites when absorbed in the blood stream, may change hemoglobin to methemoglobin, causing anoxemia and cyanosis.

Robertson and Riddell[3] report 12 cases of cyanosed infants in the Regina area. Ten of these cases were definitely identified as methemoglobinemias; two of them fatal. All were in infants who had been fed on formulas containing water of high nitrate content from shallow wells. These authors present the results of analyses of 2,000 water samples from rural Saskatchewan wells, which showed 31 per cent containing more than 10 p.p.m. of the nitrate ion and 25 per cent containing more than 20 p.p.m. The latter is a figure which they believe indicates a serious hazard, and—like the Iowa workers—the Saskatchewan authors suggest 10 p.p.m. as a desirable limit. The problem deserves the serious study of health laboratories in all our rural areas.

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WILLIAM A. EVANS

THE Association lost one of its distinguished old-time leaders in the death of William Augustus Evans on November 8, 1948, at the ripe age of 83. Dr. Evans was born in Marion, Ala., August 5, 1865. He took his medical degree at Tulane in 1885, and six years later moved to Chicago. He taught at the College of Physicians of the University of Chicago until 1908 (with the rank of Professor from 1895). In 1907, he was appointed Health Officer of Chicago, serving in that capacity for four years. In 1908, he joined the faculty of Northwestern Medical School, holding the title of Professor of Public Health Emeritus in that school at the time of his death. In 1910, he received the degree of LL.D. from his Alma Mater, Tulane (and later from the University of Mississippi in 1921). At the close of his term as Health Commissioner in 1911 he received the degree of Dr.P.H. from the University of Michigan. He served as President of the American Public Health Association in 1917.

Dr. Evans was one of the most vigorous and progressive health officers of his day and generation. In Chicago he was responsible for three policies which represented notable vision thirty years ago. He took a strong stand for the pasteurization of milk (then not a very popular cause). He was one of the first

health officers to initiate active study of the problems of air hygiene, bringing together hygienists and engineers to discuss them and formulate policies for school and factory ventilation. Finally, he was a bold and effective pioneer in health education. His weekly bulletin (in an edition of 7,000), his special bulletin for factories and stores, his well organized lecture bureau, were far in advance of the times; and on his retirement from the Health Department in 1911 he became health editor of the *Chicago Daily Tribune*, continuing his educational work through its columns for twenty-three years.

The highest quality of a health administrator is, perhaps, his ability to do what others will be doing twenty years later. By this standard, W. A. Evans earned a place of distinction in American public health.

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Take a Test

The Merit System Service booth at the American Public Health Association annual meeting in Boston attracted considerable attention with its "TAKE A TEST" exhibit. This consisted of six short sample tests, designed to illustrate the type of service being offered by the Merit System Service and to show how public health information, experience, and judgment can be measured by objective examinations.

The exhibit was repeated at the Western Branch meeting of the American Public Health Association in Los Angeles, Calif., May 30 to June 1.

The results for the Boston meeting are available in an attractively bound report which contains copies of the six sample tests, an answer key, an analysis of the scores of the persons tested, and an analysis of the items themselves. The latter illustrates the method which is used to evaluate the effectiveness of individual questions. The report may be obtained by writing to the Merit System Service, American Public Health Association, 1790 Broadway, New York 19, N. Y. $1.00.

Q Fever

A Note Clarifying the Identity of American Strains of *Coxiella burnetii*

ELIAS STRAUSS, M.D., AND S. EDWARD SULKIN, PH.D.
Dallas, Tex.

THE purpose of this note is to call attention to a confusion in the literature regarding the identity of the Nine-Mile[1] and Dyer[2] strains of *Coxiella burnetii*. A number of statements are made in the literature which would indicate that these strains are identical.[3-5] Since publication of our paper, "Q Fever. Complement-Fixing Antibodies with *C. burnetii* Antigens in Various Geographic Areas and Occupational Groups in the United States," which appeared in the *American Journal of Public Health* (39:492, (Apr.), 1949), it has been called to our attention[6] that these two strains differ significantly in their immunologic properties. Subsequently, Dr. Herald R. Cox[7] has stated that, "On the basis of quantitative complement-fixation studies it has been conclusively demonstrated that the Dyer and Nine-Mile strains are not similar in respect to their serological sensitivity and specificity, and that both Nine-Mile American and Henzerling Italian are much more sensitive than the Dyer American; also, that there is no essential difference between the Nine-Mile and Henzerling strains in this respect." These observations have been confirmed by Smadel and his associates.[7] We are informed that these data are to appear shortly in the *Journal of Immunology*.[8]

In view of the foregoing, it should be emphasized that the serologic studies reported by us in the April, 1949, issue of the *American Journal of Public Health* were performed entirely with complement-fixing antigen prepared with the Nine-Mile strain. This is also true of the serologic studies carried out in connection with the Amarillo epidemic.[9, 10] The implication in our paper that "an even greater number of sera would have fixed complement had the Henzerling strain been employed" is consequently unwarranted.

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Clearing House on Public Health Salary Information and Personnel Needs

RAINBOW OF RECRUITMENT PAMPHLETS

Public Health—A Career With a Future has gone through two editions. Now its children—*Careers With A Future*—have begun to appear on the scene. The first two arrived in May and are called respectively *Industrial Hygiene* and the *Engineer and Sanitarian in Public Health. Industrial Hygiene* includes the industrial physician, nurse, engineer, and chemist. For each of the six jobs there are a brief description of the job, the requirements, employment opportunities, salary ranges, and training facilities.

The pamphlets are prepared under the supervision of A.P.H.A.'s Committee on Professional Education which is distributing them. They are brief, attractively produced in various colors and carry a reproduction of the Association's Seal on the cover. When and if all are published—the if depending on money to pay the printer—they will be a rainbow of colors, at the end of which it is the hope that there will be a pot of golden recruits.

A FILM FOR RECRUITMENT

"Journey into Medicine" (See *A.J.P.H.*, 39:7 (July), 1949) is a film originally prepared for the United States Department of State for showings outside of the United States only. It has now been released for showing in this country. It is an appealing story of the lad who went to medical school, became a pediatrician in order to get at early causes of ill health, and then found he needed to go even further back to get at prevention, and became a public health physician.

The regional offices of the U. S. Public Health Service have copies for loan. It can be purchased from Castle Films, 30 Rockefeller Plaza, New York 20, $46.84 with a 10 per cent discount for non-profit agencies. This film will be shown as a part of the film program at the A.P.H.A. Annual Meeting in October.

MUNICIPAL PAY RATE TREND UP

The International City Managers Association has made a survey of pay rates for 20 common municipal jobs, largely semiskilled or clerical, in 99 cities, from which it concludes that "cities that granted pay increases in 1948 generally raised all salaries and not just those of certain jobs." For 15 of the jobs there were increases in more than 80 per cent of the cities; four jobs in between 75 and 80 per cent. Although, except for some clerical workers, these are not public health workers, nevertheless the study might be useful, at least for the cities included, as an evidence of the "signs of the time" in the community. Pay Rates for Selected City Jobs in January, 1949, International City Manager's Association, 1313 E. 60th St., Chicago 37. The study is not available for general distribution but the Mayor's office will probably have it.

CATCHING THEM YOUNG

The National Organization for Public Health Nursing has an Advisory Committee on Vocational Counseling, whose chairman is Ruth E. Rives, who is the assistant director of public health nursing in the New York State Department of Health. This committee, in the apparent belief that practising public health nurses have an opportunity—and a responsibility—to guide youngsters into the profession, has recently sent the following letter to N.O.P.H.N.'s member

agencies, to its state associations, to directors of university programs of study and state divisions of public health nursing, and, for information, to state nurses' associations:

As this letter is written there are hundreds of unfilled openings for public health nurses in the United States. The shortage of public health nurses has reached a dangerous point. Budgeted positions are crossed off budgets, services are curtailed, and essential services are not rendered in many localities. The standard of one public health nurse for 5,000 population except where bedside nursing is included in the generalized program—where one nurse for 2,000 population is recommended—has become highly unrealistic in the majority of communities.

The Joint Committee on Careers is not financially in position at this time to recruit for any of the special services, including public health nursing. Individual public health nurses can help with recruitment for their field. They are strategically placed: in the homes where they meet young people and their parents, in the schools where they may discuss nursing with teachers, counselors, and students, and in many community group activities which are rich sources for recruitment.

Agencies might consider offering the services of selected qualified staff nurses as vocational counselors to student nurse groups. These counselors, who should be particularly enthusiastic about public health nursing, might function in a big sister capacity to one, a few, or a large group of students. They might participate in professional adjustments classes. The objective of this "sistering" is the recruitment of desirable candidates into our special field.

This big sister plan may be transferred to high school groups, also, with the aim of recruiting for basic nursing preparation. Of course this plan should be discussed and carried out jointly with other community groups working on recruitment.

Does this appeal to you? Do you have any other ideas to share? Can the N.O.P.H.N. Advisory Committee on Vocational Counseling help you with your plans for the promotion of recruitment for nursing and for public health nursing? We should like to hear from you.

How about the Association of State and Territorial Health Officers, of State Laboratory Directors, the Conference of Municipal Public Health Engineers, and similar bodies developing some type of grass roots recruitment program?

ANOTHER NURSE RECRUITMENT PLAN

The New York City Department of Health has presented to the Budget Director a plan to fill vacancies for public health nurses, 326 now in the department's employ. The plan, endorsed by medical, nursing, and public health leaders calls for increasing the starting salaries of public health nurses from $2,400 to $3,000 a year, including the city cost of living bonus, and graduate nurses meeting public health nursing requirements would receive an increase of $600 a year. About 125 trainees would be accepted annually for an orientation program followed by university training at the city's expense, the educational program to be modeled after that of the New York State Department of Health.

GEORGIA LURES NURSES

The 1947 report of the Georgia State Health Department has just come to hand. The Division of Nursing has an interesting nurse recruitment page that might well be used as a poster with which to plaster the roadside fence posts, as well as the more formal bulletin boards in nursing and other schools. It's a drawing of a nurse (of course she's attractive); a caption that says, "Greater Salaries for Georgia Public Health Nurse!"; the former and current pay scale for three grades of public health nurses showing from 10 to 15 per cent rise; and the address of the Nursing Division. Incidentally, the Georgia Health Department has revised its "A Career in Public Health Nursing" to include, in response to many requests, a description of some of the activities of the public health nurse, and is accordingly called, "Services of Public Health Nurses in Georgia."

SCHOOLS OF PUBLIC HEALTH ACCREDITED FOR 1949-1950

The Executive Board of the American Public Health Association, on May 25, 1949, acted favorably on the recommendations concerning accreditation of schools of public health submitted by the Committee on Professional Education. The Executive Board voted to reaccredit 10 schools for the degree Master of Public Health (M.P.H. in the United States; the equivalent degree of the University of Toronto is the Diploma of Public Health, or D.P.H.). Eight of these institutions were also accredited for the degree of Doctor of Public Health (Dr.P.H.). Tulane University, for the first time this year is accredited for the Dr.P.H. degree in addition to the M.P.H. degree.

A new step in the accreditation program of the American Public Health Association (announced in the *American Journal of Public Health*, April, 1949, p. 535) now also provides for accreditation of Master's degrees other than the M.P.H. with specialization in the field of public health education. This type of accreditation is limited to institutions with schools of public health already accredited for the M.P.H. degree. Five of the 10 schools of public health accredited for the M.P.H. degree applied and were accredited for Master's degrees other than the M.P.H. with specialization in public health education. The kind of Master's degree granted varies with the overall structure of the individual graduate school. At the University of Toronto the equivalent of such a Master's degree is the Certificate in Public Health (health education).

Below are listed the schools accredited for 1949–1950, the types of degrees for which they are accredited, and the names of the deans or directors:

INSTITUTIONS ACCREDITED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION FOR THE ACADEMIC YEAR 1949–1950

Institution	*Degrees Accredited*		
	Master of Public Health (M.P.H.) *	*Doctor of Public Health (Dr. P.H.)*	*Master's Degree other than the M.P.H.† in Public Health Education*
California, University of School of Public Health Berkeley 4, Calif. E. S. Rogers, M.D., Dean	x	x	
Columbia University School of Public Health New York 32, N. Y. H. W. Brown, M.D., Acting Director	x	x	
Harvard University School of Public Health Boston 15, Mass. J. S. Simmons, M.D., Dean	x	x	x
Johns Hopkins University School of Hygiene and Public Health Baltimore 5, Md. E. L. Stebbins, M.D., Director	x	x	
Michigan, University of School of Public Health Ann Arbor, Mich. H. F. Vaughan, Dr.P.H., Dean	x	x	
Minnesota, University of School of Public Health Minneapolis 14, Minn. G. W. Anderson, M.D., Director	x		x

INSTITUTIONS ACCREDITED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION FOR THE ACADEMIC YEAR 1949–1950 (Cont.)

Institution	*Degrees Accredited*		
	Master of Public Health (M.P.H.) *	*Doctor of Public Health (Dr. P.H.)*	*Master's Degree other than the M.P.H.† in Public Health Education*
North Carolina, University of School of Public Health Chapel Hill, N. C. E. G. McGavran, M.D., Dean	x	x	x
Toronto, University of School of Hygiene Toronto 5, Ontario, Canada R. D. Defries, M.D., Director	x		x
Tulane University Department of Public Health New Orleans 13, La. M. E. Lapham, M.D., Dean	x	x	
Yale University Department of Public Health New Haven, Conn. Ira V. Hiscock, Sc.D., Chairman	x	x	x

* Diploma in Public Health, D.P.H. at the University of Toronto
† Certificate in Public Health, C.P.H. at the University of Toronto

Credit Lines

A RURAL COUNTY SURVEYS ITSELF

A survey of Columbiana County, Ohio, entitled, "You and Your Neighbor" has been published by the agricultural extension service of the Ohio State University. The study was based upon interviews with citizens by citizens, 317 persons interviewed 4,789 rural families comprising 16,790 individuals. They found inadequate protection against diphtheria, whooping cough, and smallpox, and made suitable recommendations. With respect to tuberculosis a single tuberculosis program and a single health department for the entire county were recommended. Water supply, sewage disposal, brucellosis, and dental care were all surveyed with recommendations.

The Rural Health Council planned and conducted the study to secure a maximum of local involvement in finding and correcting existing health problems. Twenty township survey chairmen helped to make the survey possible.

Columbiana County has not been standing still. In 1949 it has secured a health center for its county health department, stepped up its tuberculosis program with a medical director, three nurses, and new clinic facilities. It secured a full-time health commissioner after a technical survey by the field staff of the A.P.H.A. in 1947. The county health department serves less than half of the county's population of nearly 100,000. Four cities of 10,000 or more, only one of which has more than 25,000 inhabitants, each has a part-time health officer.

Included is the long-range program adopted after the survey, listing 21 items and, in a corresponding column, the agencies that have accepted responsibility for each item. This list of agencies for the various items is in itself a text on local coöperation. The study is an outstanding example of the use of the survey technique for getting action as well as of community participation in community programs.

Available from Agricultural Extension Service, Ohio State University, Columbus.

OHIO LOOKS AT ITS PUBLIC HEALTH

There have been a number of recent evidences that public health in Ohio is having a rebirth. *Ohio CAN Have Better Public Health Service*, by the Ohio Committee on Public Health, may be cause or effect. At any rate, it is an excellent brief, yet detailed summary of what Ohio citizens need to do to bring their state's public health services up to a standard consonant with the state's wealth, population, and industrial and educational importance.

There are 10 conclusions that mince no words about the shortcomings of the State Health Department, particularly the serious lack of funds appropriated for its work. Its chief recommendations are for sufficient appropriations to carry on an adequate state program without federal funds for essential state services. These latter funds should be used largely for local health services.

The Ohio Public Health Committee, stimulated by the Rural Health Council, was organized early in 1948. It is made up of representatives of 12 organizations, medical, health, farm, labor, and civic. It has begun a second study that will concern itself with the administration and quality and efficiency of local health departments.

The report is succinct and forceful. The study is notable in that it used readily available basic data. It drew on

detailed material of previous studies, permitting its prompt completion at low cost.

UNIQUE CANCER EDUCATION

As briefly described in a previous issue of the *Journal* (July, 1948, p. 1017), the New York City Cancer Committee, for the past 7 years has sponsored annual contests for exhibits and posters in New York City high schools. The 1949 exhibit containing nearly 550 exhibits and posters was again shown in the Museum of Natural History. The exhibits, carefully prepared, were based on sound principles and reliable scientific information. Many of the posters were comparable to the best professionally prepared material and represented the individual expression of various types of talents.

There is no better way to disseminate health information that will "stick" for a lifetime than to stimulate young people to work on projects concerned with a particular problem. This New York City Cancer Contest is an excellent example of stimulating teachers and children to use their creative abilities in an interesting and worth while project. The value of "incidental" learning by relatives and friends is an additional asset.

Nor should the fact be overlooked that a goodly number of the participants through the interest developed in cancer and other health problems might become worthy recruits for the health field.

SHARING HOSPITAL NEWS

To pass on news about its member hospitals, the American Hospital Association in June began a two page monthly *News Service* to be distributed to all its members. It is designed to contain short news stories than can be used in local or state hospitals' journals. Among the items in Vol. 1, No. 1, is the announcement of a comprehensive five year *Cumulative Index of Current Hospital Literature* to be ready for subscribers early in 1950. American Hospital Association, 18 E. Division St., Chicago 10.

"ATTITUDES" AND DENTAL CARE

Following the modern psychological trend of taking account of basic attitudes and motivation in getting individual or mass action, a study of "Parental Attitudes and Dental Care for Children" has been made in selected rural areas of Louisiana. As one might expect, children whose parents were aware of the importance of dental care got more dental care than others. The study nevertheless is an illustration of a fertile field in health work, namely that "attitudes" as well as facilities have a good deal to do with health habits. The study was discussed at the recent meeting of the Southern Branch A.P.H.A. in Dallas. It was made by two members of Louisiana State University's Department of Rural Sociology and published with the coöperation of the Louisiana State Health Department, New Orleans, from which it is presumably available.

BREMERTON'S HEALTH COUNCIL DAY

The Kitsap County Community Health Council last April celebrated Washington State's first "Health Council Day." It invited leaders of the 10 community health councils in the state to Bremerton for a day of discussion and exchange of information. The Bremerton-Kitsap County Health Officer, Shirley Benham, M.D., spoke on the work and objectives of community health councils. Also explored was the question of organizing a Washington Association of Health Councils.

HOW TO GET SPEAKERS ON HEALTH

The Minneapolis Health Department, through its bureau of health information, has prepared a five page mimeographed list of topics for talks on health and the eight local agencies that provide speakers for the topics listed, including often films or other visual aids. This is a serv-

ice that might well be copied elsewhere. Minneapolis Health Department, 401 City Hall.

LAUGHING AND LEARNING

Doc Snork and Mrs. Snork and Maybelle and little Reginald, portrayed in a few pencil drawings, are sure to make the kids laugh. They decorate the "Doc Snork" letters which remind children about vaccination, about lice, about good nutritious meals, and all the other matters that health educators try to get over to children in one unique way or another. You may be sure the kids will take the letters home where "none of those pop and hot dog lunches for the little Snorks" will also have its effect.

The Division of Health, Department of Public Welfare, Dayton, Ohio, which puts out these letters, offers to share experience with other agencies that might wish to use a similar idea. The health educator, George W. Watson, says "Only by pooling resources can we ever hope to advance and since this little device has met with remarkable success here others might derive benefit from it also."

A FIRST DIRECTORY

The Illinois Public Health Association has recently published a directory of its more than 600 members, about three-quarters of whom are also A.P.H.A. members. Both job and home addresses as well as A.P.H.A. membership are indicated. This is believed to be the first directory to be published by a state or regional public health association. It has one serious omission; neither the I.P.H.A. officers nor a brief description of the organization are included. Hence if you want to congratulate the Association or see its directory, you'll have to find its officers and address elsewhere.

WHY PATIENTS LEAVE TUBERCULOSIS HOSPITALS

At the recent March annual meeting of the New York Tuberculosis and Health Association a study, based on nearly 2,000 discharged patients in four metropolitan tuberculosis hospitals, was released, analyzing the reasons why patients in tuberculosis hospitals leave against medical advice. Nearly half of those discharged alive left against medical advice. Two thirds of these "sign outs" were reported due to dissatisfaction with the institution. This is a study that should be in the hands not only of tuberculosis hospital administrators but also of case workers and others dealing with the family of the tuberculous patient. The report is the work of Godias J. Drolet, statistician of the Association, and his associate, Donald E. Porter, New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16.

MULTIPLE SCLEROSIS APPEAL

The National Multiple Sclerosis Society has published a very brief but effective appeal for funds for its work. It is a good piece of health education in helping the public to understand some of the implications of the disease and particularly the need for further research to increase the body of definitive knowledge about it. National Multiple Sclerosis Society, 2 East 103 St., New York 29.

MONTREAL'S HEALTH DISTRICTS

A recent *Health Bulletin* of the Montreal Department of Health (Vol. 35, No. 2, Mar.-Apr., 1949) is devoted to a description of Montreal's health districts, eight of which are now in existence and a ninth planned. Each will serve from 100,000 to 150,000 persons. The health centers "greatest claim to usefulness," according to the description, is that it constitutes "a small department of health which has abandoned the high altitudes of administration to mingle with the people."

There is also a historical note on

health districts in a large city which cites the East Harlem and Bellevue-Yorkville Districts in New York, the North End district of Boston, and the Eastern Health District of Baltimore, as forerunners of the present accepted district plan of administration.

It might be noted in passing that the districting of large cities into subcenters and the consolidation of small cities and counties or of several counties into one administrative unit are two sides of the same shield—namely dealing with units of population that can justify and support an adequate service and that are yet manageable, with administration close enough to the people not to become too routinized and formalized.

HOW GOES PIERRE THE PELICAN

The *Journal* of May, 1948 (p. 721) described briefly the Pierre the Pelican series of the Louisiana Society for Mental Health. The series is sent once a month for a year to the parents of a new-born baby, and is designed to help the parents in avoiding pitfalls in the early training, particularly of the first born. The first year's experience has now been evaluated and reported on in *Louisiana Mental Health Studies*, No. 1, November, 1948, under the direction of Loyd W. Rowland and a group of his students at the Tulane Graduate School of Social Work. There is a page and a half of text for the layman giving the major highlights and all tending to indicate that Pierre the Pelican families do a better job of handling the routine of child care than non-Pelican families. There is a much longer evaluation analysis for the professional—and parent who wishes to read.

The series has also been used in West Virginia through the coöperation of the West Virginia Bureau of Mental Hygiene and the Division of Vital Statistics. The Louisiana Society has prepared a brief report of West Virginia's method of distributing the Pelican pamphlets.

All this material is available from the Louisiana Society, 816 Hibernia Bldg., New Orleans 12.

A TUBERCULOSIS SOCIETY BULLETIN CONCENTRATES ON LOCAL HEALTH UNITS

It will be remembered that the National Tuberculosis Association has on more than one occasion passed resolutions that adequate organized local health services were indispensable to the most effective operation of local tuberculosis control programs. Its program development has found numerous ways of passing the intent of these resolutions on to state and local affiliates.

That the Massachusetts Tuberculosis and Health League is in full accord with its parent organization is indicated by the April issue of its organ, *The Massachusetts Health Journal*. This issue is devoted mainly to consideration of local health units as a means of bringing better public health to Massachusetts. It has a message from the Governor urging the union of towns, the report of Hugh R. Leavell, M.D., Chairman of the Technical Committee on Local Health Units of the Special Commission on Public Health, which outlines a plan for local health units in Massachusetts, articles by both Dr. Vlado A. Getting, the Health Commissioner, and Dr. Robert E. Archibald, Director of Local Health Administration, and by C. W. Kammeier, the Executive Director of the Massachusetts Tuberculosis and Health League. Nor are rural health problems neglected, for a solution such as is reported by the Nashoba Associated Boards of Health, is fully described. Although geared to the Massachusetts situation, the articles have a good deal of relevance for other states as well. Massachusetts Tuberculosis and Health League, 1148 Little Building, Boston 16.

TAKING RESOLUTIONS SERIOUSLY

The *Crusader* of the Wisconsin Anti-

tuberculosis Association has been giving tangible reality to the resolutions of its parent organization, the National Tuberculosis Association, that local and state health departments are indispensable to most effective tuberculosis control activities.

The March issue described the State Board of Health and some of its chief activities. The April issue was devoted to the work of local health departments. It included a map of the state showing the 71 counties districted into 37 proposed health units, 15 made up of single counties, and 22 of two, three, or five counties. The *Crusader* has a mailing list of about 20,000 Wisconsin citizens who have thus had "a sampler of what the state's official health agency is doing."

FACING ACCIDENT FIGURES FRANKLY

The Oregon State Health Department has studied its accident figures. It has published them, not in a handsome printing job with extensive statistical tables. Rather, it has used one page of its weekly *Health Bulletin* for an article entitled "1948 Accident Record Among Nation's Worst." The article reports that only 6 states had worse accidental death rates, that motor vehicle accidents were the most frequent, and that at least 50 per cent of the accidents could have been prevented. Included in bold type are a few simple safety measures recommended by the State Health Officer, Harold M. Erickson, M.D. Also in bold type is a summary of January, 1949, figures indicating a more favorable situation than the previous year. This type of treatment has its advantages—and its economies—over the more extensive handsomely produced report.

CANCER LEGISLATION IN STATES

Cancer News for February, 1949 (Vol. 3, No. 2), in "Thirty States Have Cancer Legislation" gives a brief history of state cancer legislation. The first was an item in the supply bill in New York in 1898, "for the medical department of the University of Buffalo for the equipment and maintenance of a laboratory to be devoted to an investigation into the causes, nature, mortality rate, and treatment of cancer, and the salaries and officials of the same, ten thousand dollars." Massachusetts followed in 1919, since when 28 other states, the District of Columbia, and Puerto Rico have made some official provision for the control of cancer. In 12 states these laws provide for some type of permanent cancer control program in the state health department, in some there is provision for such a program under the auspices of the state university. Five states make cancer a reportable disease by law, 21 others by health department regulation. *Cancer News* is published by the American Cancer Society, 4 Beaver St., New York 4.

A DRAMATIC DEMONSTRATION

The Shelby-Effingham Bicounty Health Department in Illinois is hardly more than a year old. But it had an opportunity to dramatize its value to the community following the St. Anthony's Hospital fire in Effingham in April. Not only were there 75 deaths but there was a general disruption of medical, obstetric, and surgical services within the area. Following requests for home nursing aid in child birth cases that had been scheduled for the destroyed hospital, the health department nursing services were put on an emergency basis. Within 24 hours three home deliveries had received health department nursing aid.

Out of this grew an interim plan of home nursing delivery service with three additional nurses employed by the county and a number of others put on to be paid on a fee basis. A state grant-in-aid has made this program possible. The news release distributed by the director of the health department, Fred O. Tonney, M.D., says, "This incident

gives us a new conception of what a local health department can mean to a community over and above the presently accepted routine services—a matter which deserves thoughtful consideration for the future planning of the national public health program."

SAFETY MATERIALS

The business of making the public, particularly the younger generation, safety conscious does not slacken its pace. The National Commission on Safety Education of the National Education Association has a quartet of recent publications. They are:

1948 Annual Report which includes a 1948 bibliography of the Commission's Safety publications, and their prices.

Highway Safety: A Challenge to Youth—Designed to help teachers of upper elementary grade integrate traffic safety with social studies program, 30¢.

Minimum Standards for School Buses, 1948 Revised Edition and Standards, 35 cents, and *Training Programs for School Bus Drivers,* 30 cents. Both Bulletins were developed by the October, 1948, National Conference on School Transportation at which 44 state departments of education were represented. For all three publications there is a reduction up to one-third for quantity orders. National Education Association, 1201 Sixteenth St., N.W., Washington 6.

Also out is the *Program Package for Home Safety* of the National Safety Council's Home Safety Conference. This contains instructions and a variety of material for the organization of community home safety programs. The kit is $1, but if ordered with two other dollar items, annual subscription to the *Newsletter* and another to the *Home Safety Review,* all three can be had for $2. National Safety Council, 20 N. Wacker Drive, Chicago 6.

HOW ACCIDENTS HAPPEN

A detailed, interesting, and revealing analysis of home accidental injuries and deaths in Atlanta during 1948 was written by Charles Gaddis of the Atlanta Chapter of American Red Cross. He had the help of Atlanta's hospitals and The Bureau of Vital Statistics in its preparation. Among its significant findings is, "Children up to four years of age were the most frequently injured, suffering more falls than any other group."

The study is to be found in *Home Safety Review,* Apr.-May, 1949, published by the National Safety Council, 20 N. Wacker Drive, Chicago 6.

UTAH'S MERIT SYSTEM

The habit of reporting on Merit Systems grows. The report of Utah's Merit System for the year ending June 30, 1948, with illustrations and simple language, tells of the advantages of the Merit System and implies that all workers should be under it instead of only the one-fifth of the nearly 5,000 total state employees who are in the four departments covered—health, public welfare, employment security, and highway patrol. Merit System Council, 428 Atlas Bldg., Salt Lake City.

WORTH ACQUIRING

My Story is a 38 page magazine-like publication that looks like one of the popular women's magazines. Its several love stories of the confession type, as well as the advertisements, cross word puzzles and other facilities, have a VD message woven into them. And, of course, they all have a happy ending. It is intended particularly for widespread distribution in industry, clubs, and lounging rooms.

The magazine was prepared in coöperation with the U. S. Public Health Service by Health Publications Institute, 216 North Dawson St., Raleigh, N. C., from whom it is available at $25 per 100; $200 per 1,000, with an additional 10 and 25 per cent discount respectively for 5,000 or 10,000 copies.

The Nurse and Planned Parenthood, written by four nurses is a brief discussion of the factors in family planning. The aims and importance of Planned Parenthood are intepreted for the nurse to aid her in taking her full share of responsibility in carrying out the program under appropriate medical supervision. Planned Parenthood Federation of America, 501 Madison Avenue, New York 22, 10 cents or $6 per 100.

Boys Want to Know is the fourth in a series of pamphlets dealing with questions and problems of boys and girls of various ages. Published by the New York Tuberculosis and Health Association, 386 Fourth Ave., New York 16, to whom queries should be addressed.

You Will Want to Know is a brief 8 page summary, with pictures and in color, telling of the activities of the 63 year old Public Health Laboratory of the Kansas State Board of Health. It is geared to the theme "Why We Need a Building." Kansas State Board of Health, Topeka.

Discipline is the newest in the Parent-Teacher Series being edited by Ruth Cunningham for the Columbia University Teacher's College Bureau of Publications. Its subtitle might well be "Comfortable Discipline." It has many hints for maintaining discipline without at the same time creating mental hygiene problems, 60 cents.

ANNUAL REPORTS

The 1947–48 report of the Richmond, Virginia, Health Department is called "The Future is Now." It is an excellent illustration of making what are often dull facts come alive for the average reader. Simple line drawings, sometimes a bit humorous, a minimum of wordage and some real accomplishments to report, and a reminder of the need for citizen support—these are the elements in a simple job, expertly done. The report, incidentally, was introduced to a public outside the state at the recent meeting of the Southern Branch of the A.P.H.A.

Kay County's Health: Then and Now is a very short annual report of this Oklahoma County's health service based on a comparison between two 4 year periods 1936–1940 and 1944–1948. Effective use is made of graphic material to tell the story and sandwich in a bit of health education besides.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Fetal and Neonatal Death—*Revised and brought completely up to date, with new sections on the Rh factor and the effect of maternal German measles on the fetus*—*By Edith L. Potter, M.D., and Fred L. Adair, M.D. Chicago: University of Chicago Press,* 1949. 167 pp. Price, $3.75.

This edition like the first, reviews the present status of knowledge of development and organ structure of the normal fetus and new-born infant, the technique and scope of the post-mortem examination for the fetus and new-born infant, the principal causes of fetal and neonatal death, the special pathology of the various systems of the body in the fetus and new-born, and statistical data.

The most outstanding developments in knowledge during the nine years spanned between the two editions—the discovery of the Rh factor and its relationship to erythroblastosis in the fetus and new-born infant, and the gradual accumulation of evidence that virus infections occurring during the first few months of pregnancy may cause death or malformation of the embryo, are covered in this new edition.

During the same period there has been a significant decrease in fetal and neonatal mortality. This edition calls attention to the fact that between 1937 and 1945 the combined rates for stillbirths and neonatal deaths per 1,000 live births in the United States have dropped from 66 to 48, and that in certain obstetric hospitals the mortality today is below the hypothetical irreducible minimum of a few years ago. The statistical data in the last chapter give corroborating evidence of this fact as well as other interesting and significant data from the Chicago Lying-In Hospital. A discussion of maternal mortality not included in the first edition is incorporated in this edition, as is a discussion of the close interrelationship of the problems of maternal, fetal, and neonatal mortality. ELLA OPPENHEIMER

The Shame of the States—*By Albert Deutsch. New York: Harcourt, Brace,* 1948. 188 pp. Price, $3.00.

Deutsch attempts to rouse the conscience of the American people to the shocking conditions present in most of their state mental hospitals. He describes the overcrowding, understaffing, inadequate budgetary allotments, lack of adequate treatment facilities, etc., that exist in state mental hospitals throughout the country.

The history of the development of the state mental hospital is outlined, and responsibility for its present sad plight is attributed to the apathetic attitude of the average citizen. Deutsch has faith in the conscience of the American people and believes that, the facts being known, most Americans will press for needed changes and willingly tax themselves sufficiently, to eradicate this "Shame of the States."

Certainly, changes in the care of the mentally ill are long overdue. *Every general hospital* must enlarge its local function of giving comprehensive medical care by adding an acute *psychiatric service* with related outpatient clinic for the diagnosis and early treatment of behavior and maladjustment problems of adults and children. One wishes Deutsch had included and stressed this most important recommendation as a part of his plan to improve the care of the mentally ill in America.

This book should be required reading in our schools and colleges. Also, every public spirited legislator would more clearly see the urgent need to direct public funds into the field of preventive

mental health—if he took time to learn the shocking facts, briefly outlined in this small, well written volume.

S. BERNARD WORTIS

School Health Education—*By Delbert Oberteuffer. New York: Harper,* 1949. 393 pp. Price, $3.25.

School Health Education covers very adequately and systematically the current situation and problems in the school health field. It brings together under one cover a review of the various fundamental principles, beliefs, and trends concerning school health work; specific suggestions on programs and activities; and references to the facilities and resources available. It is a well organized, carefully thought through summary of school health problems and the various ways of approaching them, fitting them into their logical relationship to public health education and the practice of medicine.

The sections on classroom teaching, course organization and content and evaluation explain school health education in the light of basic principles of good education. These specific suggestions are based on the needs and interests of individual children, and are selected to affect the behavior and attitudes of the individual and to foster his well rounded and balanced growth. The material is fitted into its proper place in the curriculum, and is particularly helpful in the explanation and illustration of the integrated health teaching program and experience.

The business of health appraisal in schools is carefully outlined and should help to clarify the many questions raised with regard to what functions should be developed—how, why, and by whom. Specific programs relating to communicable disease control, mental hygiene, nutrition, dental health, vision, hearing, environment, physical education, the special problems of the handicapped, and emergency care are all clearly reviewed. Recognition of the importance of professional preparation is given but is reviewed in less detail; however, the many references are well selected and organized.

One full chapter is given over to the important interrelationships of school and community personnel. Without clarification of these administrative and personnel lines of endeavor and without coöperation action, no school health program can function adequately.

The objectives of school health education are clearly presented in this book and the outlines and suggestions will be of value to all students of school health in teaching, medical, nursing, or other related professional fields. Whether or not one agrees with the specifics within the book, the reader will obtain a splendid overall point of view of the purposes of school health programs and the various procedures required to fulfil them. This is done in a simple, clear manner with good definitions of both education and public health terms. Dr. Oberteuffer is a clear thinker and has prepared a sound reference book which makes a real contribution to the literature in the field. GEORGE M. WHEATLEY

How to Tell Your Child About Sex—*Public Affairs Pamphlet No. 149 —By James L. Hymes, Jr. New York: Public Affairs Committee, Inc.,* 1949. 31 pp. Price, $0.20.

Mr. Hymes is Professor of Education and Coordinator of Early Childhood Education at the State Teachers College, New Paltz, N. Y. His article maintains the high standards that have characterized Public Affairs Committee, Inc., publications.

Among the many pamphlets intended to be of assistance to parents in answering children's questions about reproduction, this may be recommended as one of the best. The printed word ordinarily is not an effective means of communicating through the barriers of

already established attitudes that characterize parents' feelings about sex unless the author uses suitable devices for establishing good feeling and reassurance about the subject and avoids creating further emotional difficulties. This is not easy and the special value of this publication lies in the author's success in this respect. In addition to providing simple suggestions for answering children's questions, the pamphlet makes it clear that the important part of the child's "sex education" is derived from parental attitudes, feelings, and conduct. This reviewer feels satisfied with all the suggested answers except the explanation of menstruation. In essence it is suggested that to the child a satisfying explanation is that some accumulated blood containing food for a baby that did not materialize is discharged each month. Aside from the question of its accuracy, this explanation might harbor unsuspected meanings for a child. ADOLPH WEINZIRL

Mayo Clinic Diet Manual—*By the Committee on Dietetics of the Mayo Clinic. Philadelphia: Saunders,* 1949. 329 pp. Price, $4.00.

The tables and procedures presented in this book give a wide range of information which reflects current practices in therapeutic diets. The material was developed for use as well as for teaching purposes and represents "convergent trends but not unanimity of opinion" of the physicians of the Mayo Clinic.

The format, alternate blank pages for notes, should greatly enhance usefulness. Each diet is presented in a single table. These simple and legible tables should facilitate rapid referral and ready reference.

It is unfortunate that the book was in press when the 1948 revision of *Recommended Dietary Allowances* of the Food and Nutrition Board of the National Research Council was published, because all the diets are calculated to conform strictly to the 1945 recommended dietary allowances, and wherever there occurs a divergence from these allowances, the deviation is plainly stated. The authors feel that for practical purposes the dietary allowances were changed so little that this does not create a serious defect.

Many useful data are included: among them are tables of food high in cholesterol, sodium, oxalic acid, iron and calcium, age-height-weight tables, as well as a food nomogram. There is a detailed table of contents, but no index.

This book would be a valuable addition to the working library of dietitians, physicians, nutritionists, and nurses.

MARGARET C. MOORE

Safeguarding Motherhood—*By Sol T. DeLee, M.D. Philadelphia: Lippincott,* 1949. 123 pp. Price, $2.00.

Safeguarding Motherhood is a study in contradiction which, to say the least, would be confusing to the expectant mother for whom the book is intended. He tells the mother, "The prospective mother should take cheerfulness as her motto. Cheerfulness will work wonders for her, her baby, and her home. She should keep in mind the over-flowing happiness that a delightful, lively, rosy-cheeked baby will bring in a few months' time." But how can she be cheerful when the following pages are filled with such gloomy topics as nausea, vomiting, flatulence, cramps, piles, edema, mental unrest, chills and fever, toxemia, abortion, placenta previa, heart disease, thyroid disturbances and most of the other pathology known to medicine?

Dr. DeLee advises the mother to have confidence in herself, but the fears which are instilled can only make her cling more frantically to her doctor. He puts great stress upon the importance of the father-to-be, but then would ban him as a "visitor" from his wife during the latter stages of her labor.

He describes labor as "a perfectly natural function" and declares "It has been shown repeatedly that the well informed patient adopts the attitude that labor is not a horrifying experience but Nature's way of terminating the pregnancy. In the absence of fear this work can proceed more naturally and efficiently and with far less discomfort." Later on Dr. DeLee states that "Delivery is a surgical procedure."

Perhaps the central idea of the book is best epitomized by Dr. DeLee's selection of words. Most young women go to their doctor on the first prenatal visit hoping they are pregnant. But says DeLee, "In most cases the first prenatal visit paid to a doctor is one during which the patient expects to confirm her *suspicion* of pregnancy."

There is a crying need for a book on maternity and the relationship of the coming of a baby to the family, the doctor, nurse, hospital, and the community that emphasizes the importance of health, physical, mental and family health, and shows the way to achieve it.

HAZEL CORBIN

Social Medicine: Its Derivations and Objectives—*Edited by Iago Galdston, M.D. New York: Commonwealth Fund,* 1949. 293 pp. Price, $2.75.

Many of the 25 essays collected here are exceedingly interesting, although they are rather uneven and do not form an entirely consistent pattern. Subject matter varies from detailed contributions on nutrition to lofty philosophic discussion of "The World Scene."

Several lines of thought, however, thread through most of the papers: medicine must more and more consider the entire personality of the patient, especially his emotional and psychological life and his familial, occupational, and general social setting—indeed, his whole culture; more scientific studies are needed of all the factors, social and individual, that affect the health of a living population in its cultural pattern; preventive medicine should be the daily task of every physician—who will "spend his time keeping the fit fit rather than trying to make the unfit fit" (Lord Horder): physicians should be more active in efforts to improve such general conditions affecting health as nutrition, housing, family and social relationships; medical education must better prepare doctors to understand and alter emotional and social influences on health.

Several enthusiasts urge the naïve belief that social science, fully applied, can resolve the world's ills. Indeed, the book's major defect is that little attention is given to practical means for putting its admirable ideas into effect. Most would appear to require large-scale governmental action, yet this seems greatly feared by many of the authors.

DEAN A. CLARK

The Venereal Diseases—*By James Marshall. (2nd ed.) New York: Macmillan,* 1948. 369 pp. Price, $5.50.

This brief manual, described as "For Practitioners and Students" is chiefly interesting to Americans for the picture it provides of the British attitude toward developments of recent years in the therapy of the venereal diseases. The author is the Director of the Venereal Diseases Clinic of the Royal Northern Hospital in London, and has been Advisor in Venereology to the British War Office.

Of greatest interest is Dr. Marshall's advice that early syphilis be treated with daily injections of an arsenoxide over a 10 day period, in supplement to 2.4 million units of penicillin over a period of 7½ days. This distrust of penicillin alone in early syphilis is typical of the present British medical point of view, and depends, apparently, upon the experience in the British Army, where the failure rate with penicillin alone was held to be higher than in this country or the U. S. Army in Europe.

In various types of late syphilis, in pregnancy complicated by syphilis, and even in congenital syphilis, recommendations for the use of penicillin are qualified by the advice to supplement such therapy with the arsenicals and bismuth.

The author endorses the effectiveness of penicillin in gonorrhea, though he remains dubious concerning the effectiveness of the delayed absorption variety. There is a considerable discussion of the complications of this disease, and here the divergence from American practices is most evident. In stress upon use of sulfonamides, the passage of the urethral sound as a test of cure, potassium permanganate douches in salpingitis, and reliance upon the gonococcal complement-fixation test, the author presents views sharply different from those drawn in recent years on this side of the Atlantic.

Save as a source book for information on current British therapeutic practices in venereal disease, this manual would have little value to an American clinician or public health man. JAMES H. LADE

Rheumatic Fever: Nursing Care in Pictures—*By Sabra S. Sadler. Philadelphia: Lippincott,* 1949. 151 pp. Price, $3.50.

Occasionally a thoroughly practical, comprehensive, authoritative, clear, and simple set of instructions for nursing a special disease in the home appears. Mrs. Sadler has prepared such instructions in this book—practical even to the point of being bound to lie flat and cleanable with a damp cloth!

A description of rheumatic fever—its causes so far as we know them now, its symptoms, course and prognosis—precedes the nursing instructions, thus providing parents with an understanding of the reasons for giving care in a certain way. The book is written for parents, illustrated for parents, and contains so many procedures common to long-term sickness situations in the home that nurses will find it exceedingly useful for teaching purposes in a variety of conditions. The book ends on the cheerful note "Returning to Normal," and the final picture shows the recovered child keeping in touch with the doctor through periodic visits to his office.

This is altogether a highly satisfactory book to be recommended unreservedly to everyone having home contacts with rheumatic fever. Would there could be similar tools for the home care of such diseases as cancer, diabetes, and nephritis!

DOROTHY DEMING, R.N.

Maternity in Great Britain.—*Joint Committee of the Royal College of Obstetricians and Gynecologists, and the Population Investigation Committee. New York: Oxford University Press,* 1949. 252 pp. Price, $4.00.

This report of a survey of social and economic aspects of pregnancy and childbirth is probably more complete than any survey on this subject ever made before. It was undertaken and completed by the British Royal College of Obstetricians and Gynecologists, and the Population Investigation Committee, before the initiation of the new National Health Service. Major objectives were to study the extent to which existing maternity services, public and private, met the needs and desires of mothers, and to determine the costs of such services. Clinical aspects of maternity, although referred to, were secondary to the study of social and economic problems.

The study was based on personal interviews, eight weeks postpartum, by health visitors (most nearly comparable to our public health nurses), with 13,687 mothers delivered in England, Scotland, and Wales, during a given week in 1946. Interviews were satisfactorily completed for between 80 and 90 per cent of all deliveries occurring during this week. This was not too difficult, since 96 per

cent of the mothers in England receive postpartum visits by the health visitors.

The following are samples of the interesting data found in this study:

In 65 per cent of these homes, the number of occupants is greater than the number of rooms.

The stillbirth rate for the most prosperous family group was 24.0, and for the least prosperous group, 40.3.

The neonatal death rates for these two classes were, respectively, 18.9 and 30.1.

72 per cent of the mothers received antenatal care at the local public maternity centers, and visited the clinics on the average of eight times during the pregnancy.

Undesirable premises for many clinics, lack of appointment systems, and variations in the skills and interests of the attending physicians are described.

54 per cent of the deliveries occurred in hospitals, but priority for hospital care was not always given to those most in need of such services.

In spite of an acute shortage of beds, the hospital stay in England averaged 13 days, and in Scotland 10 days.

The main complaint of the mothers interviewed was, "No attempt was made to relieve labor pains."

Only 52 per cent of those delivered in hospitals were given any pain relief.

The survey reported that, "In all aspects of maternity care, well-to-do mothers get better attention than those who are poor." Factors underlying these social inequalities are discussed. Special mention is made of prematurity, infant feeding, problems of working mothers, and household help.

The study should have been extremely valuable to all of those in Great Britain concerned with development of the expanded National Health Service Act which became effective two years later. A similar study in the United States would undoubtedly result in producing a wealth of useful data in this important field. EDWIN F. DAILY

Social Surveys—*A Guide for Use in Local Planning. New York: Council of Jewish Federations and Welfare Funds,* 1949. 29 pp. Price, $.50.

The Council of Jewish Federations and Welfare Funds prepared this excellent short guide for a staff engaged in field surveys. It will be useful to communities considering such ventures. The approach to surveys as tools rather than as panaceas is well presented.

ROSCOE P. KANDLE

Trace Elements in Foods—*By G. W. Monier-Williams. New York: Wiley,* 1949. 511 pp. Price, $6.00.

From the title of this book one might expect to find merely extensive tables showing the distribution of trace elements in foods. On the contrary, it covers in a very interesting and complete manner the biochemistry, the nutritional significance, and the toxicology of over 30 trace elements. Of this group the author points out that six are essential for animal life and three more for plant life. A few others, such as selenium, occur spasmodically in plants and a good many gain access to food from industrial processing.

Each chapter is very complete with a selected group of important references. Much space (perhaps too much for many readers) is given to analytical methods for each of the elements. Emphasis is given to the public health aspects of many of the elements, especially copper. Less attention is given to selenium, probably because the problem is not so serious in England as it is in the United States.

The book is very valuable to workers in many fields and certainly everyone interested in public health should have the book available. As one would expect when a single author attempts to cover as extensive a field as trace elements, a few significant references are omitted and certain insignificant material is included. C. A. ELVEHJEM

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Females and Infants Had the Best of It—If the death rate of 1940 had held in 1947, then 267,000 more people would have died than departed this world that year. All the leading causes of death, except cancer, played a part in the life saving. And the cancer increase was under 3 per cent, which may simply reflect better reporting. This study is something you will not want to miss.

ANON. The Fruits of Life Conservation. Stat. Bull. (Met. Life Ins. Co.) 30, 5:1 (May), 1949.

Broader-View Department—"Curiosity is often considered a bothersome trait which has got us into a great deal of trouble from the days of the Garden of Eden to Those of Hiroshima." "Against unfettered scientific curiosity there is now strong opposition." These two assertions should make you look up from your own little preoccupations long enough to read the whole paper.

BRONK, D. W. Science and Humanity. Science 109, 2837:477 (May 13), 1949.

Kippers, Pilchards, Swedes, *et al.*—What will men and women eat in 1960? asks this British researcher. Nobody knows because nobody has tried to find out! is his answer to his own question. Then he tells how he got some advance information by asking young workers, still in their teens, what they liked. Isn't there a nubbin of an idea there that may be worth importing?

CLARK, F. LE G. Food Ways of the Young Worker (two parts). M. Officer 81, 23:235 (June 4), 1949.

Cholesterol: Scientific Enigma—Does age 60 seem not too far away? Then this paper will tell you what you had better eat. Perhaps you will want to pass along the word to someone else nearer than you to old age. Mostly this paper is about calcium, iron, and protein, with a warning about cholesterol.

CRAMPTON, C. W. Dietary Aids and Dangers for the Aging. Pub. Health Nurs. 41, 6:320 (June), 1949.

Ominous Record—If you want to know where polio was most prevalent last year, here is the information. Both morbidity and mortality rates were highest in years. The west north central part of the country was hit hardest.

DAUER, C. C. Prevalence of Poliomyelitis in 1948. Pub. Health Rep. 64, 23:733 (June 10), 1949.

Despite Insufficient Funds and Nonexistent Personnel—Mental hygiene begins to take its place with other functions of a comprehensive health program in this Maryland County. The clinics will serve as centers of inservice training in the principles of mental health for *all* the departmental staffers.

DAVENS, E., AND LEMKAU, P. Birth of a Community Mental Health Clinic. Pub. Health Rep. 64, 21:657 (May 27), 1949.

News Item—Two manuals, one for public health nurses and the other for health officers, are in course of preparation by the National Cancer Institute and the New York State Department of Health. Watch for them! Lay pamphlets will soon be available too.

DEIBERT, A. V., *et al.* Professional Education for Cancer Control (and four related papers). Pub. Health Rep. 64, 24:749 (June 17), 1949.

Did You Know?—To sanitize means, "to apply measures to food handling equipment, eating and drinking

utensils, and the like, so as to reduce the bacterial count to safe levels . . ." I still think it a clumsy word.

DU BOIS, A. S. Meaning of the word "Sanitization." Mod. Sanitation. 1, 2:31 (June), 1949.

Anent Mental Impenetrability—Before and after a county-wide chest x-ray project, people were asked to tell what they knew about tuberculosis. As an educational medium the x-ray activity proved to be small potatoes. Some—mostly the younger ones—learned quite a little but the overall educational results were slim.

GALIHER, C. B., AND WRIGHT, J. E. What Does a Roentgenographic Survey Teach the Public? Am. Rev. Tuberc. 59, 5:494 (May), 1949.

It Can Be Done—In this case finding project every syphilis patient named at least one contact, most named two, one named eleven. Altogether 144 new cases were brought to light in a season's effort by three investigators.

GRAY, A. L., *et al.* Syphilis Contact Investigation in a Rural County in Mississippi. J. Ven. Dis. Inform. 30, 6:165 (June), 1949.

Noise vs. Hearing—Will noise drive you crazy? At least it menaces your health and destroys efficiency, says this subcommittee. It is a health hazard that no longer should be allowed to lie dormant, they insist.

GROVE, W. E. Will Noise Damage One's Hearing? J.A.M.A. 140, 8:674 (June 25), 1949.

From Aretaeus to Waksmann—Prize essays are frequently prize bores but this one isn't. Just to follow this (then) fourth-year-medical-student as she circumnavigates the entire sphere of preventive medicine, in six pages, is to be a witness to an epoch-making jet-plane flight.

MANNING, M. D. Preventive Medicine. New England J. Med. 240, 26:1047 (June 30), 1949.

Are These Your Questions, Too?—"Most of (the visitors') questions centered around the community relations of the (mental health) clinic—what agencies are worked with directly, both on a referral and a consultative basis; what were the extramural activities; what were the mechanisms of cooperation with the community agencies; . . . how can the interest and support of the community and local agencies be fostered?" Answers are given.

ROSS, M. Pilot Mental Health Clinic. Pub. Health Rep. 64, 25:799 (June 24), 1949.

Nation-wide Eradication Is Possible—Proof is here, if you need it, that community-wide vaccination of dogs is essential to canine rabies control: without it the other measures, no matter how strictly enforced, won't do the trick. There is a lot more to this paper about the Rabies Control Branch, V.P.H. Division.

STEELE, J. H., AND TIERKEL, E. S. Rabies Problems and Control. Pub. Health Rep. 64, 25:785 (June 24), 1949.

Neither by Itself Alone—Full-time, rural health services hold no threat to village V.N.S.'s. Each should strengthen the services of the other—in five ways that are discussed.

WINSLOW, A. R., AND WINSLOW, C.-E. A. District Health Unit and Voluntary Nursing Agency. Pub. Health Nurs. 41, 6:315 (June), 1949.

"Not a Cause for Complacency"—Whatever role diphtheria immunization may have played originally in reducing morbidity, it has precious little effect upon the immunity status of the present adult population, say these researchers. The current high percentage of Schick-positives among young men in the Navy is—see quotes above.

WORCESTER, J., AND CHEEVER, F. S. The Schick Status of 18,000 Young Male Adults. New England J. Med. 240, 24:954 (June 16), 1949.

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

ADVANCES IN INTERNAL MEDICINE. .Vol. 3. William Dock and I. Snapper. New York: Interscience, 1949. 444 pp. Price, $8.50.

AMERICAN EDUCATION AND INTERNATIONAL TENSIONS. Educational Policies Commission. Washington: National Education Association of the United States. 54 pp. Price, $.25.

BEFORE YOU MARRY. Sylvanus M. Duvall. New York: Association Press, 1949. 171 pp. Price, $2.50.

ECONOMIC AND SOCIAL COUNCIL COMMISSION ON NARCOTIC DRUGS. Summary of Annual Reports of Governments for 1946. United Nations. New York: Columbia University Press, 1948. 112 pp. Price, $1.00.

EDUCATION ASSOCIATIONS AND DIRECTORIES. Washington: Gov. Ptg. Office, 1949. 57 pp. Price, $.15.

ESSENTIALS OF RURAL WELFARE. A Publication of the Food and Agriculture Organization of the United Nations. New York: Columbia University Press, 1949. 43 pp. Price, $.50.

FAMILY IN A DEMOCRATIC SOCIETY, THE. Anniversary Papers of the Community Service Society of New York. New York: Columbia University Press, 1949. 284 pp. Price, $3.75.

HOOKWORM DISEASE IN SZECHWAN PROVINCE, WEST CHINA, STUDIES ON. K. Chang and Co-Workers. Baltimore: Johns Hopkins Press, 1949. 147 pp. Price, $3.00.

INSTITUTE D'URBANISME (TOWN PLANNING) 1948–1949. 2 Vol. Paris, France: Universite De Paris.

INSTRUCTIONAL PLAN FOR BASIC TUBERCULOSIS NURSING. New York: National League of Nursing Education, 1949. 58 pp. Price, $1.00.

KINESIOLOGY OF CORRECTIVE EXERCISE (2nd ed. rev.). Gertrude Hawley. Philadelphia: Lea & Febiger, 1949. 193 pp. 107 illus. Price, $3.75.

MARRIAGE. Robert A. Harper. New York: Appleton Century Crofts, 1949. 295 pp. Price, $2.75.

MEDICAL ETYMOLOGY. O. H. Perry Pepper. Philadelphia: Saunders, 1949. 263 pp. Price, $5.50.

NEUROLOGY. Roy E. Grinker and Paul C. Bucy (4th ed.). Springfield, Ill.: Thomas, 1949. 1145 pp. 416 illus. Price, $12.50.

OBESITY. Edward H. Rynearson and Clifford F. Gastineau. Springfield, Ill.: Thomas, 1949. 134 pp. Price, $3.50.

POLIO CAN BE CONQUERED. Alton L. Blakeslee. New York: Public Affairs Pamphlet No. 150, 1949. 31 pp. Price, $.20.

REHABILITATION OF THE TUBERCULOUS. H. A. Pattison (3rd ed.). Livingston, Columbia Co., N. Y.: Livingston Press, 1949. 239 pp. Price, $3.75.

RURAL WELFARE SERVICES. Benson J. Landis. New York: Columbia University Press, 1949. 186 pp. Price, $3.00.

SANITARY CODE OF THE ULSTER COUNTY, N. Y., HEALTH DISTRICT. Kingston, N. Y.: Ulster County Health Department, 1949. 40 pp. Price, $1.00.

SKIN PROBLEM FACING YOUNG MEN AND WOMEN, THE. Herbert Lawrence. San Francisco, Calif.: Timely Publications, 1948. 70 pp. Price, $1.50.

SUGAR. ITS PRODUCTION, TECHNOLOGY AND USES. Andrew Van Hook. New York: Ronald Press, 1949. 151 pp. Price, $3.00.

THESE ARE YOUR CHILDREN. Gladys Gardner Jenkins, Helen Shacter and William W. Bauer. Chicago: Scott, Foresman and Co., 1949. 192 pp. 200 illus. Price, $3.50.

TOXIC EYE HAZARDS. A Manual Prepared by the Joint Committee on Industrial Ophthalmology of the A.M.A. and the American Academy of Ophthalmology and Otolaryngology. New York: National Society for the Prevention of Blindness, 1949. 101 pp. Price, $1.00.

REPORTS RECEIVED

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ALAMEDA COUNTY MOSQUITO ABATEMENT DISTRICT. Annual Report 1948. Oakland, Calif.: Court House. 24 pp.

BENEFITS OF GROUP PRACTICE. The Kingsley Roberts Memorial Lectures: 1948. Alan Gregg, George Baehr and C. Rufus Rorem. New York: Medical Administration Service, 1949. 40 pp.

CENTRAL MINING-RAND MINES GROUP. Health Department Report for the Year 1948. Johannesburg, So. Africa: Department of Health. 17 pp.

ERIE COUNTY DEPARTMENT OF HEALTH, 1948.

Buffalo, N. Y.: Erie County Health Department, Office of Health Education. 88 pp.

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HOW HAWAII FIGHTS TUBERCULOSIS. REPORT FOR THE YEAR APRIL 1, 1948–MARCH 31, 1949. Honolulu: Tuberculosis Association of the Territory of Hawaii. 13 pp.

INDUSTRIAL HYGIENE PROBLEMS IN BOLIVIA, PERU AND CHILE. Public Health Bulletin No. 301. J. J. Bloomfield. Washington: Gov. Ptg. Office, 1948. 139 pp. Price, $.40.

JACME D'AGRAMONT AND THE FIRST OF THE PLAGUE TRACTATES. Regimen of Protection Against Epidemics or Pestilence and Mortality, 1348. Translated into English by M. L. Duran-Reynals and C.-E. A. Winslow. New Haven, Conn.: Yale University School of Medicine, Historical Library, 1949. 89 pp.

LABOR HEALTH INSTITUTE, THE STORY OF. Annual Report to the Membership 1948. Dr. Elmer Richman, Director. St. Louis, Mo.: Labor Health Institute. 17 pp.

LIFE INSURANCE MEDICAL RESEARCH FUND. FOURTH ANNUAL REPORT 1948. New York: Life Insurance Medical Research Fund. 89 pp.

MORTALITY STUDY OF APPLICANTS FOR INSURANCE GIVEN A GLUCOSE TOLERANCE TEST. Albert O. Jimenis, Herbert H. Marks, Rexford W. Finegan, and Norman R. Blatherwick. Newark, N. J.: Association of Life Insurance Medical Directors of America, 1948. 45 pp.

NATIONAL FOUNDATION FOR INFANTILE PARALYSIS. 11th Annual Report 1948. New York: N.F.I.P. 94 pp.

NEW BRITAIN, CONN. ANNUAL REPORT OF THE CITY DEPARTMENT OF HEALTH 1948. 23 pp.

NEW HAVEN, CONN. ANNUAL REPORT OF THE CITY DEPARTMENT OF HEALTH 1948. 40 pp.

NOW 1948. ST. CLAIR COUNTY HEALTH DEPARTMENT AND CITIES CO-ORDINATED. FOURTH ANNUAL REPORT. Pt. Huron, Mich.: City Health Department. 23 pp.

PEORIA MUNICIPAL TUBERCULOSIS SANITARIUM. ANNUAL REPORT 1948. Peoria, Ill.: P.M.T.S. 17 pp.

PROPOSED SANITARY CODE. Part III of a Study of Sanitation Services. Louisville and Jefferson County Board of Health, September-October, 1948. New York: A.P.H.A., 1949. Price, $1.00.

PUBLIC HEALTH FOR PHILADELPHIA'S COMMUNITIES. A Summary Report of a Study by The American Public Health Association. Philadelphia, Pa.: Health and Welfare Council, 1949. 115 pp.

PUBLIC HEALTH RELATIONS, COMMITTEE ON. A Summary Report of Activities for the Year 1948. New York: N. Y. Academy of Medicine. 14 pp.

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Public Health in Foreign Periodicals

GEORGE ROSEN, M.D., PH.D.

CONCERN for the health of the industrial worker is no longer a matter merely of sentiment or humanitarianism. It has become a vital necessity in the calculations of any industrialized community. The relations of occupation and health have today been extended so that these include not alone patent disease states but all factors that have a bearing on the maintenance of industrial health.

PSYCHOMETRY AND THE PREVENTION OF OCCUPATIONAL ACCIDENTS

Bonnardel reports on the use of psychometric tests to determine accident prone workers.[1] In a previous communication he had pointed out the significance of a "concrete intelligence" factor in the occurrence of accidents among workers. The psychometric tests on which the present results are based were made when the workers were hired, and thus before accidents had taken place. Bonnardel believes that unquestionable importance must be attributed to such tests in any program designed to discover in advance a good proportion of those workers who are more prone to accidents.

The observations upon which these conclusions are based are as follows: In one group of workers who had three or more accidents in the course of 2½ years, 41 per cent of the work days lost (381 out of 934) were due to workers who had been classed in the lowest decile at the time of the preëmployment psychometric examination. The percentage of work days lost for persons in this group was six times higher than in the whole working population.

Out of 153 workers who had accidents during the first 6 months of their employment, 39 (25 per cent) had been classed in the lowest decile at the psychometric test.

Finally, Bonnardel reports the case of a group of North African workers employed in a foundry who had accidents during a 3 month period. Here the proportion between the number of accidents and the number of workers, for the different groups derived from the psychometric tests, ranged progressively from 14.4 per cent for the lowest group to 2.5 per cent for the highest groups.

SUPERVISION OF EMPLOYED MINORS IN STOCKHOLM

This paper presents results obtained from physical examinations of 1,477 employed minors in Stockholm.[2] These workers ranged from 13 to 18 years of age. The authors report that in the past 40 to 45 years the weight of workers in this group has increased by 10 to 15 kg. and their height by 10 to 15 cm. About 13 per cent of the group examined were found to have postural defects that required orthopedic treatment. Anomalies of refraction were found in some 7 per cent. The authors stress the great importance of finding and correcting refractive errors as a means of accident prevention. Hearing defects and dermatological findings were rare; and approximately 1 per cent were found to be suffering from cardiac conditions. Dental caries was present in almost everyone examined. In conclusion the authors stress the need for examinations oftener than once a year. The follow-up could be performed by a public health nurse.

SILICOSIS AMONG FERRO-SILICON AND FERRO-CHROMIUM WORKERS

Broch investigated the occurrence of

silicosis among workers in a plant where ferro-silicon was fused with ferro-chromium.[3] A considerable number of workers with silicosis was found. After 16 to 19 years of employment in the ferro-silicon furnace house, about half of 21 workers had definite silicosis. One worker who had worked for seven years at charging the ferro-silicon furnaces had silicosis, stage I. Broch points out that the workers who charge the ferro-silicon furnaces are especially exposed. Chemical analysis of dust from various spots in the ferro-silicon furnace house showed a silica content ranging from 48 per cent to more than 80 per cent. X-ray examination of the dust indicated that amorphous silica was the cause of silicosis. Investigations among the ferro-chromium workers showed no silicosis in those who had worked 10 to 13 years. Further studies are being made to substantiate these findings.

SANITARY DRAWBACKS IN SPRAY PAINTING AND PROPHYLAXIS

By means of a questionnaire, Erkkilä collected information from 210 workers employed in spray painting (175 men and 35 women) on the dangers to health in this type of work and the steps taken to prevent such dangers.[4] Almost all the workers reported some symptoms. Only 13 workers (6.2 per cent) reported no symptoms. While 157 (74.8 per cent) felt that the work was detrimental to health, 26 thought it quite safe. Twenty-seven workers were undecided on this point.

The following arrangements were used in different plants to prevent poisoning:

Ventilator and gas mask	63 cases (30.0%)
Ventilator	39 cases (18.6%)
Gas mask	61 cases (29.0%)

In 47 cases there were no safety arrangements of any kind. The author concludes that better arrangements should be made to safeguard the workers, and that they should be informed about the dangers associated with this work. Furthermore, he recommends that to rid the workshops of the heavy "paint dust" these be equipped with suction ventilators.

FLUOROGRAPHIC CONTROL OF TUBERCULOSIS AND SILICOSIS IN THE METAL INDUSTRY OF NORTHERN ITALY

Italian physicians since the time of Ramazzini have had a keen interest in problems of occupational medicine, and this interest is still active. Despite the difficulties of the post-war period, several journals devoted to this field have continued to appear. A number of items from recent issues of *Medicina del Lavoro* will illustrate this tendency.

Vigliani, Parmeggiani, and Zanetti report the results of a fluorographic survey from 1945 to 1948 among 25,253 workers in foundries and steel works of Northern Italy.[5] All these workers were insured against tuberculosis. Pneumoconiosis was observed in 2.20 per cent of the cases. These were divided into: reticulation and reticular fibrosis 1.45 per cent; nodular and massive silicosis and silico-tuberculosis 0.75 per cent. Dust alterations were found to be more frequent among workers in foundries and steel works (5 per cent), less frequent among those in cast iron and in nonferrous foundries, and fewer still among mechanical workers exposed to dust inhalation (0.92 per cent).

Tuberculosis (including primary complexes and healed foci) was revealed in 12.90 per cent of the workers. Cases of active tuberculosis, or such as were regarded as active were distributed as follows: steel foundries and plants 2.68 per cent; mechanical works 2.26 per cent; cast iron and nonferrous foundries 1.35 per cent. Tuberculosis was found to be more frequent in those industries where the silicosis danger is greater. The cases of active tuberculosis amounted to 1.90 per cent of the total.

The authors conclude that the fluorographic method is suitable for early

diagnosis and control of silicosis and tuberculosis in industry. Annual fluorographic examination reveals any progression of tuberculosis or silicotic lesions. A mobile fluorographic unit is more suitable for industrial establishments situated far from urban centers where fixed installations exist.

RADIOLOGICAL STUDIES OF THE LUNGS IN SILICOSIS

Zanetti made a radiological study of the hilar shadows of 1,026 silicotics.[6] A very high percentage of enlargements and thickening of the hili was observed, particularly in early forms. In more advanced nodular forms there is a tendency to a reduction of the previously enlarged hili. In massive or conglomerate silicosis the severe alterations of the parenchyma sometimes hide the hilar shadows to a considerable degree. In slowly advancing silicosis, the changes are often chiefly glandular, with considerable increase in the size of the shadows, especially noticeable in the case of the inferior parahilar glands.

EVOLUTION OF SILICOTIC LESIONS IN WORKERS NO LONGER EXPOSED TO DUST

What happens to the lesions of silicotics after removal from exposure to the deleterious dust? Montesano undertakes to throw light on this point.[7] He points out that there are three opinions on this matter: (1) That the lesions are arrested and in some degree undergo gradual resolution; (2) That the lesions continue to progress; (3) That they remain stationary.

Montesano has had experience with anthracite miners for several years, and has considered the problem from the medical, industrial, and medicolegal aspects. He began by studying and following 30 such cases, but as some dropped out later only 12 are reported in this paper. For 10 of the 12 workers, two x-ray photographs, taken 3 years apart are reproduced. The findings were quite similar in all the cases. The first x-ray examination showed a diffuse fibrosis, the second an "extensive massive silicosis."

Montesano was particularly impressed by the varying rates at which the lesions progressed. In some, the lesions after 6 months were at a stage which was not seen in others for years. The second point which he makes is that the lesions progressed whether or not the man was removed from his job. Third, the lesion progressed at the same rate no matter whether the workers stayed at their jobs or left. In the case of nine workers who had changed their occupation 3 to 5 years before, this did not change the development of the disease, provided that there was no associated tuberculosis. It should be mentioned that all these cases were not complicated by tuberculosis. The author recommends careful preëmployment examinations, frequent change of occupation, and adequate dust removal. He sums it up aphoristically: Don't remove the worker and leave the dust, but remove the dust and leave the worker.

THE PATHOLOGY OF WORKERS EMPLOYED IN THE PRODUCTION OF NITRO- AND DINITROBENZOL

Bellesini examined 22 workers engaged in the manufacture of nitrochlorobenzol and dinitrochlorobenzol.[8] Fifteen of these men who had been employed for less than a year complained of nothing but a slight dermatitis. The author points out that the workers are supposed to wear masks, gloves and special clothes, but as soon as supervision is relaxed masks and gloves are generally removed. The seven other men in the group had been employed for periods varying from 5 to 22 years. Chief complaints in this group were headache and cramp-like abdominal pains. Pruriginous dermatitis was common, but if the worker was removed from exposure for

a while this condition soon cleared up. The blood picture was characterized by a mild degree of hyperchromic anemia, with poikilocytosis, anisocytosis, and macrocytes. There was an increase in the reticulocytes. The white cell findings were quite variable. There was some hepatic enlargement. Bilirubin and to a lesser degree urobilin were increased in the blood, and the Takata-Ara reaction was positive.

The author points out that acute poisoning in the industry is rare, and that most of the workers have been employed for a long time. The compounds enter the body either through the skin or through the respiratory tract. Ordinary protective measures, if employed by the workers, seem to be adequate to prevent poisoning.

OCCUPATIONAL TUMORS OF THE LUNGS

Saita points out that pulmonary tumors have increased greatly during the past decades, and that many physicians feel that this development is due in part to increased industrial employment of irritant or toxic carcinogenic materials.[9] Consequently, he reviews clinical, statistical, and experimental data on tumors of the lungs caused by dust and substances used in industry. Saita concludes that only asbestos dust and coal tar derivatives have an unquestioned facility for producing tumors of the lungs. This is probably true also of certain radioactive substances and chrome derivatives. The percentage of workers affected with occupational pulmonary cancer is low. Consequently, strictly occupational cancers are responsible only in small part for the increase in pulmonary tumors in the last few decades.

BARRIER CREAMS IN THE PROPHYLAXIS OF OCCUPATIONAL DERMATOSES

Barrier creams as a method for the prevention of industrial dermatitis have not yet been introduced in Italy.[10] Puccinelli discusses the theoretical and practical principles involved, and how the creams may be used. He reports on the first encouraging results of experiments with such creams and expresses the hope that this protective device may soon be widely used in Italy.

OCCUPATIONAL PATHOLOGY OF GLASS THREADS

Cirla offers an interesting report on a group of 25 workers employed at covering electrical conductors with spun glass.[11] In this group symptoms were noted and these traced to the action of dust created from the glass fibers in various phases of the work. The symptoms affect chiefly the skin—persistent itching and needle-shaped areas of erythema, at times resembling scabies. Changes of lesser significance were noticed on the mucous membrane of the respiratory organs and the conjunctiva. The possibility of pulmonary damage from glass threads still lacks confirmation and further observation is needed. This also applies to the gastrointestinal tract. Protective measures recommended are the provision of showers for the workers, and measures for dust limitation and removal. Cirla concludes that the working of spun glass is exceedingly tiring, but not dangerous to any degree.

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Maryland Observes an Anniversary

Maryland observed the 75th anniversary of the establishment of its State Board of Health on May 27, in connection with the 29th annual conference of the State Department of Health. In 1874 the General Assembly of Maryland became the sixth state legislature in this country to establish a board with statewide authority in matters pertaining to public health and prevention of disease.

Robert H. Riley, M.D., Director of the State Department of Health, points out that the forward looking step taken by Maryland three-quarters of a century ago was an expression of a national trend toward greater awareness of public health needs. At the time of its establishment the State Board of Health as summarized in the April issue of the *Maryland Health Bulletin* limited its interest largely to the prevention of epidemics, improvement of unfavorable sanitary conditions, and reporting of deaths. Personal hygiene entered the program in 1922 with the inauguration of preventive and educational services for expectant mothers, which were soon followed by school health work, a dental program and concern for industrial health problems. By 1934 each county in the state had full-time health service, reportedly the first state to achieve 100 per cent coverage. The organization of a medical care program for indigent and medically indigent residents of Maryland's counties in 1945 marked the extension of the health program into the curative field. Administration of chronic disease hospitals and state tuberculosis hospitals have followed. Mental health, cancer and heart programs have been the latest additions. In general the growth of Maryland's health program during the 75 years of existence reflects the advance of medical knowledge and the development of public health theory and practice in the United States and throughout the world.

Dr. Riley has been State Health Officer since 1928, in length of service the fourth oldest state health officer in the United States.

ASSOCIATION NEWS

SEVENTY-SEVENTH ANNUAL MEETING
AMERICAN PUBLIC HEALTH ASSOCIATION
NEW YORK, N. Y., OCTOBER 24–28, 1949

POST-CONVENTION TOUR TO BERMUDA
Six Days — 2½ Days in the Islands

A recent *News Letter* to the members proposed as a possibility a post-convention tour to Bermuda under Association auspices at the close of the 77th Annual Meeting in New York City. Many interested persons have responded and the tour will take place.

The party will leave New York at 3:00 P.M. on October 29—the meeting closes Friday afternoon, October 28—on the luxurious "Queen of Bermuda." The trip will be a real "House Party" with congenial companions.

The Hotel Princess will be home during the 2½ days in Bermuda. It stands on a peninsula overlooking Hamilton Harbor. Every one of its rooms commands a breath-taking view.

Bermuda is intriguing, picturesque, irresistible. It is a land of cedars and blossoms, sloping green hillsides, charming bays and beaches, of white and pastel coral cottages, and it has a tempo that banishes time and care. The hibiscus, bougainvillea, Bermuda morning glories, the oleander, zephyrantes, Guernsey lilies and many other varieties of flowers will be in bloom in late October. The sight-seeing program planned as part of the tour will give the party the best of the islands.

The schedule is as follows:

October 29.	Leave New York at 3:00 P.M. See the upper and lower Bays, the famous skyline, have tea and dance, if you will.
October 30.	In the Gulf Stream. A lazy day at sea, with deck sports and dancing for the not so lazy.
October 31.	Arrive Five Fathom Hole at 7:00 A.M. and cruise along the colorful North Shore into Great Sound and Hamilton Harbor. Ashore about 9:00 A.M.
	Half day sight-seeing trip to the South Shore, the Devil's Hole, Crystal Cave, Perfume Factory, and Aquarium, returning by the North Shore.
November 1.	This is the day for your shopping, your bicycling and your own individual investigations of Bermuda's sights and sounds.
	Sail at 3:00 P.M.
November 2.	On board the "Queen."
November 3.	Arrive New York about 9.00 A.M.

A scientific program afloat and ashore is being worked out. On ship there will be opportunity to visit the ship kitchens; the hospital; hear the officers discuss ship sanitation, disposal of wastes, control of vermin and the ship doctor discuss shipboard diseases, accidents and hazards. On shore a trip to the unique horizontal wells which provide most of the drinking water for Hamilton will be arranged for those interested. It is hoped that Dr. Henry Wilkinson, Senior Medical Officer of the Bermuda Medical and Health Department, or a member of his staff will acquaint the party with Bermuda's health program.

The inclusive price of all this begins at $183.80 and advances by easy stages for those who want the choicer staterooms and hotel rooms. Prices include room with private bath and meals on ship; hotel room with twin beds, bath and meals at the Hotel Princess; sight-seeing; baggage transfers between boat and hotel, federal and Bermuda taxes and all admissions on sight-seeing trip.

Mr. Leon V. Arnold, Travel Consultant, and as familiar with Bermuda as he is with the back of his hand, is acting for the Association in making travel arrangements. If you wish to be included in the group the Association will take to Bermuda this fall, write him at once at 36 Washington Square West, New York 11, N. Y., or address your letter to the Association Office, 1790 Broadway, New York 19, N. Y.

THE 77TH ANNUAL MEETING

New York, N. Y., October 24–28, 1949

Hotel Reservation Form

	Rooms with Bath	
Hotels	*Singles*	*Doubles*
Belmont Plaza	$4.00–$7.00	$6.00–$9.00
Governor Clinton	3.50– 5.75	5.50– 9.50
Henry Hudson	3.50– 5.00	6.00– 8.00
Lincoln	4.00– 7.00	6.00– 9.00
Martinique *	3.00– 5.50	5.00– 8.00
McAlpin *	4.00– 7.00	6.50–10.00
New Yorker	4.00–10.00	7.00–13.50
Roosevelt	3.50–10.00	8.00–14.00
Statler	4.50– 7.50	7.00–10.00
Taft *	3.75– 7.00	6.50– 9.00
Tudor	3.00– 5.00	5.00– 9.00
Wentworth *	4.00– 6.00	6.00– 8.00

* The starred hotels which are listed above also provide rooms without baths at the following rates:

	Singles	*Doubles*
Martinique	$2.00–$3.50	$4.00–$5.00
McAlpin	3.00– 3.50	5.00– 5.50
Taft	3.00– 3.50	5.00
Wentworth	3.00– 4.50	5.00– 6.00

MAKE ROOM RESERVATIONS EARLY

APPLICATION FOR HOTEL ACCOMMODATIONS
AMERICAN PUBLIC HEALTH ASSOCIATION
77th Annual Meeting and Meetings of Related Organizations, New York, N. Y.
October 24–28, 1949
(Note that the Meeting opens Monday, October 24 at 9:30 A.M.)

Please make hotel reservation as indicated below:
Double Room with Bath at $..... per day for ..... persons
Single Room with Bath at $..... per day for ..... persons
Double Room without Bath at $..... per day for ..... persons
Single Room without Bath at $..... per day
Suite at $..... per day for ..... persons

ARRIVING: OCTOBER .... Hour ..... LEAVING: OCTOBER .... Hour .....
Please print (or type) names and addresses of all occupants including persons making reservation.

NAME STREET ADDRESS CITY STATE

.....
.....
.....

Name .....
Street Address .....
City ..... State .....

Mail Direct to the Hotel of Your Choice.

RESERVATIONS WILL BE HELD UNTIL 6:00 P.M. ONLY, UNLESS THE HOTEL IS NOTIFIED OF LATE ARRIVALS

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

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Dorothy L. Petsch, R.N., Worthington Hospital Assn., Worthington, Minn., Student, Univ. of Minnesota, School of Public Health

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John Flannery, 8320 13th Ave., Brooklyn 28, N. Y., Student, Columbia Univ., New York, N. Y.

V. Keith Giddings, 1135 Fullerton, Chicago, Ill., Inspector, American Institute of Baking

August W. Koenig, 400 Beverly, P. O. Box 179, Tracy, Calif., Administrator, Tracy Community Memorial Hospital

Dwight H. Murray, M.D., Box 209, Napa, Calif., Private Practice

Martin L. Norton, 2317 Tiebout Ave., New York 57, N. Y., Inspection Officer, Foreign Quarantine Division, U.S.P.H.S., Federal Security Agency

Chester F. Porterfield, 56 E. 52nd St., New York 22, N. Y., Vice-president, L. W. Frohlich and Co., Inc.

Joseph J. Rodelli, 1148–64th St., Brooklyn 19, N. Y., Health Inspector, New York City Dept. of Health

Herbert S. Stalker, M.D., Tranquille, B. C., Canada, Medical Supt., Tranquille Sanatorium, British Columbia Tuberculosis Division

Morris A. Wolf, R.N., 675 E. 140th St., New York 54, N. Y., Registered Nurse

THE ENGINEERING SECTION PROJECT

The Engineering Section Project completed two and a half years of activity on May 1. On the same date it lost its first field director in that William T. Ingram, formerly Engineering Field Associate of the Association staff, became Associate Professor of Public Health Engineering at the New York University College of Engineering. Important and noteworthy progress has been made through the activities of Mr. Ingram, other members of the staff, and of the Engineering Section during the first 30 months of the Project.

The purpose of the Engineering Section Project is to improve administrative practices, assist in training personnel, and guide qualified individuals into public health activities in environmental sanitation. Some of the highlights of activities undertaken so far should be of interest to the whole public health profession.

The problems which attend the execution of environmental health services have been explored and analyzed. Administrative problems including the planning of programs, the evaluation of positions, and the determination of work loads have been discussed with state and local sanitation and health officials throughout the country. Problems of training engineers and sanitarians have been discussed with the workers and their supervisors and with those who do the training. Communities, colleges, and field training units have been visited, and personnel needs investigated. Many engineers and sanitarians now employed can trace their present employment to a Project activity.

A research project has been established to bring together and continue work now being done by several associations, schools, and health departments in the United States. Included in the research will be studies to determine the validity of objective methods of evaluating sanitation administrative practice. The program will also study and compare the effectiveness of program, job and time evaluation methods.

The Project has contributed, through publications, to the development of new concepts concerning the training of both engineers and sanitarians and has, through groups such as the Association Committee on Professional Education, and the Sanitary Engineering Subcommittee of the American Society for Engineering Education, played a part in the modification of training facilities to meet the field requirements for trained personnel. In coöperation with the Association Committee on Professional Education, data have been obtained and published indicating the extent of training facilities for engineers and sanitarians and the numbers enrolled for such training. Training through short courses for water works operators, sewage works operators, food handlers, milk plant operators, and others have been considered and information presented to interested groups. A roster of all sanitary and public health engineers in the United States is now in preparation.

The American Public Health Association is the professional home of all personnel engaged in public health work. The Engineering Section Project is the staff operation which brings together many activities common to the Engineering Section, the Committee on Professional Education, and the Committee on Administrative Practice. The interests of these three are voiced through the Engineering Section Project Coördinating Committee, comprised of Ira V. Hiscock, *Chairman*, Harold A. Whittaker, Sol Pincus, and Roy Morton. The project is supported this year by funds contributed by the National Sanitation Foundation, the American Can Company, and Wallace & Tiernan, Inc. Research work of the project is being carried on under a grant from the U. S. Public Health Service, Division of Research Grants and Fellowships.

RESOLUTIONS COMMITTEE FOR NEW YORK MEETING

Appointment of the Resolutions Committee to serve at the Annual Meeting in New York is announced by Charles F. Wilinsky, M.D., *President*. The members appointed are:

Herman E. Hilleboe, M.D., *Chairman*
Mary P. Connolly
Robert D. Defries, M.D.
Alfred L. Frechette, M.D.
Ruth W. Hubbard, R.N.
Stanley H. Osborn, M.D.
W. G. Smillie, M.D.

Suggested resolutions can be sent to the committee, c/o the Association, now. As in the past, a resolutions box will be placed near the registration desk, Hotel Statler, New York City, at the time of the Annual Meeting. The time for closing the box, as determined by the Executive Board, will be announced at that time.

A.P.H.A. membership application blank on page XXVII

EMPLOYMENT SERVICE

The following pages present information for those seeking qualified public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

Address all correspondence to the Employment Service, A.P.H.A., 1790 Broadway, New York 19, N. Y., unless otherwise specified.

POSITIONS AVAILABLE

Director for Public Health Nurses; requirements: Graduation from an approved university or college with a bachelor's degree in nursing, arts or science which included or was supplemented by courses prescribed for an approved program of instruction of public health nursing experience, at least two years of which were under adequate nursing supervision and two years of which involved responsibility for supervision of public health nursing; or any combination of public health nursing experience and special training which in the opinion of the Public Health Council is equivalent. Salary $3,500 plus $280 cost of living bonus; retirement system, vacation, sick leave, 45 hour week. Write Douglas H. Fryer, M.D., Commissioner of Health, Columbia County Dept. of Health, Hudson, N. Y.

Director of Nursing—salary $4,320–$5,400; **Supervising Public Health Nurse**—salary $3,660–$4,572. Must have California Nursing license and meet the standards as set up by the California State Department of Public Health. Five and a half day week, vacation, sick leave and retirement plan. Write William F. Stein, M.D., County Health Officer, County of Fresno, Fresno, Calif.

Physician as Director of City-County Health Department. Rapidly expanding, soon to be multi-county unit. Starting salary minimum $6,500 plus $75 a month expense. Will pay to $8,000 for right man. Write: Board of Health, Defiance, Ohio.

Field Supervisor—background of community organization and voluntary agency experience (preferably tuberculosis) would be essential. Prefer man, age 30 to 40, however the qualifications are of first importance. Salary range $3,336 to $4,200 plus travel and maintenance in the field.

Executive Assistant—background of administration and experience in writing would be essential. Salary range $4,200–$5,000. For both above openings write to: Virginia Tuberculosis Association, Atlantic Life Bldg., Richmond 19, Va.

Health Officer and Director of the Topeka-Shawnee County Health Department. Salary $7,600 to $9,120 plus travel allowance. M.D. degree, graduate work in public health and experience required. Duties varied. Write: Mayor, City Bldg., Topeka, Kan.

Director, Division of Epidemiology of the Kansas State Board of Health. Salary $6,600 to $7,800 plus travel allowance. M.D. degree, experience in epidemiology and general public health. Write: F. C. Beelman, M.D., Executive Officer and Secretary, Kansas State Board of Health, Topeka, Kan.

Director, Local Health Administration of the Kansas State Board of Health. Salary $7,600 to $9,120 plus travel allowance. M.D. degree, administrative public health experience. Write: F. C. Beelman, M.D., Executive Officer and Secretary, Kansas State Board of Health, Topeka, Kan.

Director for two-county health department located in Upper Peninsula of Michigan. Population approximately 27,000. Public health training and experience desirable. Salary $7,200 for qualified person. Must furnish car; 6¢ per mile. Write: Health Department, Stambaugh, Mich.

District Nutritionist in Mississippi State Board of Health Beginning salary for nutritionist is $2,800; nutritionist consultant $2,800 to $3,400; M. S. degree in public health nutrition. Write: Nutrition Services, Mississippi State Board of Health, Jackson, Miss.

Assistant Director, M.D. (Maternal and Child Health) beginning salary $6,192 with the Los Angeles County Health Department. Two years' recent experience in the practice of medicine in a public health department is required. Six months of the experience must have been in MCH. Write: Los Angeles County Civil Service Commission, 501 North Main Street, Los Angeles 12, Calif.

Public Health Nurses: for staff positions in county health department. Program includes a special project in Maternal and Child Health and a unique working relationship in health education with a teacher training institution. Excellent offices in a small college town in Central Michigan. Salary for nurses with public health training and experience $3,000 plus 6¢ per mile.

Write: Director, Isabella County Health Department, Mt. Pleasant, Mich.

Director for Visiting Nurse Association in suburb of Chicago; degree in public health nursing and at least five years' experience required; retirement plan, 40 hour week, small staff, N.O.P.H.N. standards and salary schedule maintained. Write: Miss Marion Carpenter, 1318 Judson Avenue, Evanston, Ill.

Health Education Consultant for city-county health department. Requirements: master's degree in health education and one year full-time experience in a local health department or voluntary health organization involving community organization. Start at $275 per month, with sick leave and annual leave. Industrial population of 180,000. Write: Director of Health, State Department of Health, Charleston 5, W. Va.

Director Tuberculosis Control: Public Health or sanatorium trained physician to direct tuberculosis program. Duties include reading of x-rays, consultations with patients and nurses, also some pneumothorax work and sanatorium rounds. Excellent opportunity for rounded program. Salary $7,500—maintenance for single physician. Apply to Dr. Paul M. Golley, Director, Chattanooga-Hamilton County Health Department, Chattanooga, Tenn.

Public Health Physicians: for District Offices of State Health Dept.; starting salary about $7,000 with increases to $7,650; excellent civil service and retirement system; write Roland R. Cross, M.D., Director, State Dept. of Public Health, Springfield, Ill.

Public Health Training Center: Experienced personnel—3 public health nurses; 2 sanitary engineers; 1 health educator, needed for Training Center just being started. Good salary. Write Roland R. Cross, M.D., Director, State Dept. of Public Health, Springfield, Ill.

Dentist to serve as clinician in a school dental health program, operating a well equipped modern dental trailer, salary $5,000 per annum. Write to: S. D. Sturkie, M.D., Director, Joint Health Dept., Charlottesville, Va.

Health Educator—Master's degree in public health with experience in teaching school and experience in local health department desirable. Salary $4,000 per year plus travel compensation. Large midwest university community. Write **Box A-69**, Employment Service, A.P.H.A.

Announcement

United States Public Health Service

A competitive examination for appointment of Medical Officers and for Veterinarians in the Regular Corps of the U. S. Public Health Service will be held on October 3, 4, and 5, 1949. Applications must be received no later than September 5. Forms and additional information may be obtained by writing to the Surgeon General, U. S. Public Health Service, Washington 25, D. C.

POSITIONS WANTED

Health Educator—M.A. in health education (Teachers College, Columbia), 32, male, married. Two years' working experience in health education with official and voluntary agencies including teaching; five years army officer in charge of group and public relations work in Special Service Division. Interested in position with official or voluntary agency or teaching. Write **Box HE-7**, Employment Service, A.P.H.A.

Laboratory Assistant—B.A.; several years' experience in routine and research in public health laboratories; office procedures and patient contact; desires position in industry or public health. Write **Box L-9**, Employment Service, A.P.H.A.

Sanitary Engineer—B.E., M.S., in Sanitary Engineering; 18 years' general engineering experience. Desires position in Sanitary or Public Health Engineering field preferably in the Southwest, with industry or health department. Write **Box E-11**, Employment Service, A.P.H.A.

Bacteriologist—B.S., four years' experience in the Hospital Corps of the U. S. Navy, laboratory testing, use of biologicals and administrative duties. Desires position in public health or industry. Write **Box L-10**, Employment Service, A.P.H.A.

Bacteriologist—academic position as instructor or assistant professor—B.S. Zoology, M.A. Plant Physiology, Fellow Bacteriology and Public Health. Experience: 4 years teacher public school systems; 4 years civil service; 5 years bacteriologist including chief medical technologist clinical laboratories, research work, viruses, streptococci and histological techniques. Write **Box LD-4**, Employment Service, A.P.H.A.

Advertisement

All communications should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

Opportunities Available

WANTED—PUBLIC HEALTH PHYSICIANS FOR FOLLOWING. (a) Administrative appointment; M.P.H. or D.P.H. required; woman eligible; $7,000–$10,000; eastern metropolis. (b) Director, student health; liberal arts college; approximately 8,000 students; well equipped hospital; duties administrative rather than clinical; Pacific Coast. (c) To direct city-county health department; duties include serving as medical director on part-time basis, local sanitarium; South. (d) Woman physician; student health appointment; young women's college; faculty rank; East. (e) To direct well established program, South American country; English speaking colleagues. (f) To direct division of geriatrics and adult hygiene; Middle West. (g) Director, city-county health unit; college town located in resort area, Rocky Mountain state. (h) Student health physician; liberal arts college; duties involve part-time only; opportunity for private practice; Middle West. **PH8-1** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED — PUBLIC HEALTH DENTISTS FOR FOLLOWING: (a) Health Department, public schools; enrollment 23,000; Indiana. (b) To operate mobile dental unit; rural section, New England; $4,500, traveling expenses. (c) Clinic for underprivileged children; $4,800, car allowance; South. **PH8-2** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

WANTED — PUBLIC HEALTH NURSES FOR FOLLOWING: (a) Director, visiting nurse association to succeed director, twelve years' tenure; staff, fourteen; university town, Middle West. (b) Field position connected with educational program, large insurance company; considerable traveling. (c) Maternal and child health nursing consultant; Pacific Coast; $4,000. (d) Director, health service, 200 bed hospital; university town. (e) To supervise newly organized visiting nurse service; independent agency; challenging opportunity; vicinity New York City. (f) To serve as executive secretary, health organization; duties include conducting surveys; Middle West. (g) Supervisor of field staff of seven; city health department; East. (h) Student health nurse; coeducational college, 1,800 students; well equipped infirmary of 60 beds; private apartment available; $3,600. (i) Student health appointment; young women's college; East. (j) Industrial nurse; senior supervising position; medical department approved by ACS; industrial company having thousand employees; capital city, Middle Western state. **PH8-3** Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Advertisement

Opportunities Wanted

Health educator; B.S. (Education), M.P.H.; four years, staff public health nurse; four years, director, cancer health education unit; past several years, director, program, industrial and school health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Health educator; M.S. Public Health, eastern university; four years, health educator, county health department; three years, health coördinator, liberal arts college; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public Health dentist; M.P.H.; three years, director, dental department, public schools; six years, dental officer, state department, public health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health physician; degrees, eastern schools; M.S. (Public Health) Columbia; has held important administrative appointments in Public Health here and abroad; experience in teaching; member, American Board of Preventive Medicine and Public Health; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Public health nursing administrator; B.S. (Nursing Education), M.P.H.; three years' rural nursing; four years, supervisor, city-county health unit; past several years on faculty, university school of public health nursing; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Sanitary engineer; B.S., Civil Engineering; several years, sanitary engineer, tropics; past four years, chief, engineering division, county department of health; for further information please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

Statistician; M.S., Ph.D. degree; five years' teaching experience; past several years, director vital statistics, division city health department; for further information, please write Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

SECOND WHO ASSEMBLY MEETS IN ROME

United States delegates to the 2nd World Health Assembly which met in Rome during the month of June were as follows:

Delegates:
- Leonard A. Scheele, M.D., Chairman
  Surgeon General, U. S. Public Health Service
- Mrs. Quincy Wright, Director, Council on Foreign Relations
- Edward S. Rogers, M.D., Dean, School of Public Health, University of California

Alternates:
- James R. Miller, M.D., Board of Trustees, American Medical Association
- H. Van Zile Hyde, M.D., U. S. Public Health Service
- Howard B. Calderwood, State Department, Division of United Nations Economic and Social Affairs

Consultants:
- Allen J. Ellender, Democratic Senator from Louisiana
- Joseph L. Pfeifer, Democratic Representative from New York

Delegates and observers from 70 countries and territories attended the Assembly.

At the time of going to press, few of the Assembly's decisions had been made. Among the action to be taken was the election of 6 new members of the Executive Board, the United States being one of the 6 countries the term of whose representative expires.

The proposed total budget of WHO for 1950 is approximately $17,000,000, made up of nearly $8,000,000 of regular contributions from member nations and about $9,000,000 for technical assistance under President Truman's plan for aid to "backward areas."

During the early days of the Conference the Program Committee concerned itself with plans for expanding maternal and child health activity, education and training of public health personnel, and venereal disease control. It agreed upon a $1,000,000 program for maternal and child health including expert advice and demonstration teams subject to further action by the Committee on Administration and Finance. It also agreed upon $800,000 for expanding the work of venereal disease control. As to the world-wide shortage of medical and other public health personnel, the establishment of international medical schools under WHO sponsorship in the organization's regional offices was proposed. A total budget of $3,000,000 for overcoming personnel shortages was recommended. The Program Committee also recommended a $1,000,000 attack on poor sanitation as the basic cause of filth-borne, insect-borne, water-transmitted diseases that weaken an estimated three-quarters of the world's population.

A meeting of the Executive Board was held immediately after the close of the Assembly's sessions.

LIAISON BETWEEN A.P.H.A. AND A.A.P. CHILD HEALTH COMMITTEES

Recognizing that they have the same ultimate objective, the A.P.H.A. Committee on Child Health and the American Academy of Pediatrics Committee for the Improvement of Child Health have prepared a joint statement which defines the separate contributions and avenues of approach, as well as the areas of mutual concern of these two groups. A digest follows:

The A.P.H.A. Committee on Child Health was established at the 1947 annual meeting to act for the Association in the expanding relationships with other national organizations concerned with children. It has been charged with development of a statement of principles, policies, and standards in the maternal and child health field; with making

recommendations concerning education for professional and technical workers in this field; and with the investigation of administrative, organizational, and program matters in child health. Professional public health workers in the field of maternal and child health are chiefly concerned with community-wide provision of services for mothers and children, financed and administered by public and private agencies. Since many of the workers in these programs are members of the American Public Health Association, the Association is in a position to influence the quality of community maternal and child health services.

The American Academy of Pediatrics Committee for the Improvement of Child Health was created in February, 1947, in anticipation of the need for prompt and appropriate action arising out of the Academy's nation-wide study of child health services. The purpose of the committee is to study for the Academy all matters pertaining to child health and welfare; to collect and analyze data; to furnish source material to Academy committees; and to submit recommendations for action by the Academy's Executive Board. The American Academy of Pediatrics is primarily concerned with establishing and maintaining the highest possible standards for pediatric education, practice, and research, and thus to preserve the quality of the preventive and curative aspects of medical care for children. Through its membership the Academy can influence the quality of care by working with medical societies to reach individual practitioners, and with medical schools and pediatric services of hospitals to reach medical students and nurses.

The programs and objectives of these two committees are closely related although the professional groups and approaches differ. The efforts of both are needed to bring about improvement in the care of children. The coöperation between these two committees will help to avoid duplication of effort and provide a basis for joint action in areas of mutual concern.

COMMISSION ON CHRONIC ILLNESS BORN

A permanent Commission on Chronic Illness was organized at a series of conferences in Chicago, May 19-20. The Commission represents the culmination of more than two years' work in laying the groundwork for a concentrated attack for the first time on the various aspects of the problem of what has been called the "daily disaster" of chronic illness. Late in 1946 a Joint Committee on Chronic Illness was formed by the American Hospital Association, American Medical Association, American Public Health Association, and American Public Welfare Association. This committee was staffed by the A.P.H.A. through its Subcommittee on Medical Care and its Chairman was Ellen C. Potter, M.D., representing the American Public Welfare Association. In October, 1947, the Joint Statement of Recommendations on Planning for the Chronically Ill by the four agencies, as prepared by their Joint Committee, was published (*A.J.P.H.* 37:10 (Oct.), 1947, p. 1256).

Upon these recommendations were built the discussion and conclusions of the Section on the Chronically Ill of the May, 1948, National Health Assembly. In the fall of 1948 the Joint Committee became the Interim Commission on Chronic Illness, continuing under Dr. Potter's chairmanship.

At the recent meeting in Chicago, when the permanent Commission was created, the membership was broadened to 30 persons, including wide interest and geographical representation. The A.P.H.A. is represented by Dean W. Roberts, M.D., chief, Bureau of Medical Services, Maryland State Health Department, and Edward S. Rogers, M.D., Dean, University of California School

of Public Health. The objectives of the Commission will be definitely formulated and published shortly, on the basis of discussions at a closed session of the recent Chicago Conference. It is expected that they will be broadly similar to the goals of the Interim Commission which were:

1. to modify the prevailing attitude of society that chronic illness is hopeless; to substitute for the prevailing over-concentration on the provision of institutional care, a dynamic program designed as far as possible to prevent chronic illness, to minimize its disabling effects, and to restore its victims to a socially useful and economically productive place in the community;
2. to define the problems arising from chronic illness among all age groups, with full realization of its social as well as medical aspects;
3. to coördinate separate programs for specific diseases with a general program designed to meet more effectively the needs common to all chronically ill persons;
4. to clarify relationships among professional groups and agencies working in the field of chronic illness; and
5. to stimulate adoption in every state and community of a well-rounded plan for prevention and control of chronic illness and for the care and rehabilitation of the chronically ill.

The Commission is organized as a nonprofit corporation under the laws of Illinois and is appealing to foundations and other agencies for funds with which to carry on its work. The American Medical Association has appropriated $20,000 and is furnishing office space and equipment for five years. The National Society for Crippled Children and Adults and the New York Foundation have each provided $2,500 and the former is furnishing some staff service.

The Commission has 32 technical advisors, experts selected on the basis of their experience and achievements in the field of chronic illness. At the Chicago Conference they explored five areas of activity pertinent to the Commission's work: clinical problems, institutional care, non-institutional care, rehabilitation and convalescence, and community problems.

Between sessions of the Commission its work will be guided by a five member Executive Committee made up of Thomas Parran, M.D., dean, University of Pittsburgh Graduate School of Public Health, Mrs. Joseph T. Ryerson, active participant in Chicago civic affairs and the three officers as follows:

Chairman: Leonard W. Mayo, S.Sc.D., Vice President, Western Reserve University
Vice chairman: James R. Miller, M.D., Member, Board of Trustees, American Medical Association
Secretary: J. Douglas Colman, Executive Director, Maryland Hospital Service

The U. S. Public Health Service has assigned Mrs. Lucille M. Smith of its staff to serve as Executive Secretary pending the appointment of a staff director. At the Chicago meeting the Surgeon General, Dr. Leonard A. Scheele expressed the federal government's keen interest in the new Commission. Without any official connection, he expressed the Service's attitude as "What Can We Do To Help?"

NEW ASSISTANT SURGEONS GENERAL

The Public Health Service has three new Assistant Surgeons General, including the first woman ever to hold that office. She is Lucile Petry, Chief Nurse Officer of the Service. She was inducted in ceremonies in the Federal Security Building, Washington, on June 7. The other two new Assistant Surgeons General are Otis L. Anderson, M.D., and Vane M. Hoge, M.D., both of the Bureau of Medical Services. Dr. Hoge has been chief of the Division of Hospital Facilities since it was created in 1946.

Surgeon General Leonard A. Scheele has also announced the creation of two new divisions in the Service, the Division of States Grants, successor to the Division of States Relations, whose chief is Estella Ford Warner, M.D., the first woman to be commissioned in the Regular Corps; and the Division of

Chronic Diseases whose chief is Albert M. Chapman, M.D., formerly assistant chief of the States Relations Division.

NEBRASKA'S DR. PETTY RESIGNS

W. S. Petty, M.D., Health Officer of Nebraska since 1946, resigned as of August 1. He had been in the State Health Department since 1942. No successor has been selected. Dr. Petty has announced that he will take a refresher course in cancer diagnosis before taking a new position. He said that salary was one of the primary reasons for his resignations, the legislature having killed a bill designed to lift the ceiling of $5,500 annually for the job. Because of the low salaries and other unfavorable circumstances, Dr. Petty said he had but one physician in the department with six vacancies; five physicians have left the state service in the last four years to accept positions with higher salaries.

ILLINOIS MEDICAL HEALTH OFFICERS

The full-time medical health officers of Illinois, at the recent meeting of the State Public Health Association, revived the Illinois Association of Medical Health Officers which had been discontinued some years ago after it merged with the Illinois Public Health Association. All full-time medical health officers, school health physicians, professors of public health and preventive medicine, and other medical men engaged in full-time public health work are eligible for membership in the health officers association.

The following officers were elected:

President: W. H. Tucker, M.D.
Vice-President: S. N. Mallison, M.D.
Secretary-Treasurer: Norman J. Rose, M.D.
Executive Committee: Arlington Ailes, M.D., A. C. Baxter, M.D., P. A. Steele, M.D.

AMERICAN REGIONAL OFFICE, WHO

On March 1, under a working arrangement between the two agencies, the Pan American Sanitary Bureau began to serve as WHO's regional office for the western hemisphere. It thus becomes WHO's third regional office. As a corollary, the New York City Office of WHO was closed on April 29 and the WHO Liaison Office moved to Lake Success.

The Pan American Bureau, organized in 1902, is the central coördinating health body for the 21 countries in the Pan American Union. It is currently sponsoring large-scale programs of yellow fever control in several South American countries. It has a regional office for South America in Lima, Peru, for Central America in Guatemala City, and a field office in El Paso, Tex.

PAN AMERICAN SANITARY ORGANIZATION

Among the recommendations made by the Executive Committee of the Pan American Sanitary Organization, meeting in Washington in May, were the following:

1. Recommendation to the Directing Council of a 1950 budget for the Pan American Sanitary Bureau of $2,000,000.
2. The issue by American countries of a commemorative educational and publicity stamp in 1952, the 50th anniversary of the founding of the Pan American Sanitary Bureau as the first international health organization.
3. A program of surveying medical education centers through staff provided by the Pan American Sanitary Bureau.
4. Coöperation of the American countries in a program designed to eradicate smallpox from the Western Hemisphere.

LEGISLATION IN NORTH CAROLINA

Greensboro and High Point in Guilford County, North Carolina, have populations respectively of about 60,000 and 40,000. There are about 150,000 persons in the entire county, the most populous in the state. Currently there are three health jurisdictions but an act of the recent state legislature established a single county health department to replace the three. This is one of the

earliest, if not the first instance, of mandatory legislation for city-county health department consolidations.

The appropriation for public health work for the next biennium was doubled with a large share of the additional money to be used for local health work. The amount for local health work was more than tripled, from $350,000, to $1,150,000 a year.

An act was also passed making cancer a reportable disease.

AMERICAN HEART ASSOCIATION MEETS

At the June meeting of the American Heart Association in Atlantic City, H. M. Marvin, M.D., Associate Clinical Professor of Medicine, Yale University School of Medicine, was elected President of the Association. Other officers are:

President-elect: Howard B. Sprague, M.D., Harvard Medical School
Vice-president: Edgar B. Allen, M.D., Rochester, Minn.
Treasurer: Grant Keehn, New York (re-elected)

Among the actions taken by this annual meeting were preliminary steps for making the American Foundation for High Blood Pressure the American Heart Association's Council for High Blood Pressure Research. Also organized at this meeting was the Staff Conference of Heart Associations comprising professional staff workers in state and local affiliates of the national organization. At a dinner meeting of this Conference, Professor Ira V. Hiscock, Chairman of the Department of Public Health, Yale University School of Medicine and the retiring president of the Association, Tinsley R. Harrison, M.D., each spoke, the former on "Community Organization for Health."

HOME CARE FOR CHICAGO CANCER CASES

Michael Reese Hospital, has received a grant from the Illinois Division of the American Cancer Society, to supply free home care for indigent cancer patients on an experimental basis. The program supplements one already in operation for heart patients. The service is also being expanded to include patients with arthritis, diabetes, and neurologic disease.

OFFICERS, MONTANA ASSOCIATION

The Montana Public Health Association at its recent annual convention in Glendive elected the following officers:

President: B. C. Farrand, M.D., practising physician, Jordan
Vice-president: K. Elizabeth Anderson, Director of Health Education, State Health Department
Secretary: B. K. Kilbourne, M.D., State Health Officer

RED CROSS INITIATES INTERNATIONAL HEALTH BULLETIN

The League of Red Cross Societies, made up of the National Red Cross Societies of 66 countries, inaugurated a new quarterly bulletin in January, 1949. It has two purposes: "to give a summary of the most recent and most original projects undertaken by the National Societies and to report on any important developments in medical science which might interest the Red Cross."

Vol. 1, No. 1, January-March 1949, has four sections; one a general section of signed articles by Drs. Brock Chisholm and René Sand, among others; one on Red Cross Throughout the World with brief news notes on the international tuberculosis campaign, the Swiss Red Cross blood program and BCG Vaccination in Greece, and others; and one on Medical News, one item of which deals with the risks and drawbacks in the use of certain new drugs such as penicillin, streptomycin, vitamins, urethan, and hormones; and the fourth on International Medical Life.

The *International Health Bulletin of the League of Red Cross Societies,* issued in both French and English, is edited by Drs. G. Alsted and Z. S. Hantchef at 8, rue Munier-Romilly,

Geneva. Its annual subscription is 6 Swiss francs or $1.50. Subscriptions should be arranged through the National Red Cross.

PLUMBING CODE ACCEPTED BY NEW YORK

The New York State Department of Health has accepted the recently published *American Standard Plumbing Code* and is recommending its adoption by municipalities in New York State. The *Code* was prepared by a committee sponsored jointly by the American Society of Mechanical Engineers and the A.P.H.A. Copies may be obtained from the A.S.M.E., 33 West 39 Street, New York. $2.50.

ARIZONA PUBLIC HEALTH ASSOCIATION

The 19th annual meeting of the Arizona Public Health Association in Prescott, May 12-13, replaced the lecture method previously used with a series of workshop sessions in which everyone had an opportunity to participate actively and to discuss problems dealing with his phase of public health work. A general forum followed section meetings of nurses, sanitarians, clerks and laboratory personnel.

Robert E. Rothermel, M.D., assistant field director, American Public Health Association, who was also moderator of the panel, "To Arizona's Future Health," spoke on health in Arizona, comparing expenditures of the "Baby State," which amount to approximately 24 cents per person, with the Hawaiian Islands where over $4 per person is spent annually.

The 1950 meeting is to be held in Safford and will again use the workshop technique.

Officers for the coming year are:

President: Mrs. Marion Sprague
President-elect: C. E. Reddick, M.D.
Vice-president: Margaret Eacrett
Secretary: Doris L. Rakop
Treasurer: Mary E. Peterson

Dr. Reddick and Mrs. Sprague are in the State Health Department, respectively as director of local health administration and administrative assistant.

COLORADO PUBLIC HEALTH ASSOCIATION

The annual meeting of the Colorado Public Health Association was held in Pueblo May 23-24 under the Presidency of Mrs. Mary H. Emberton, R.N., of Denver. The Secretary was Sara Lon Harrison and Chairman of the Program Committee was Norma Johannis, both of Denver. About 200 persons attended.

Out-of-state speakers included Fred T. Foard, M.D., Director of Health, U. S. Indian Service, Washington; Cyrus Maxwell, M.D., U. S. Office of Education, Washington; Fred Hein, M.D., American Medical Association, Chicago; Martin W. Fleck, Professor of Physiology, University of New Mexico, and Reginald M. Atwater, M.D., American Public Health Association, New York.

Symposia were held on state and local health councils, school health, veterinary medicine in public health, on industrial hygiene, mental health, and the interrelationships of preventive and curative services.

Officers elected at Pueblo include:

President: Roland H. Loder, M.D., Greeley
Vice President: Francis L. Candlin, D.V.M., Denver
Secretary: Mrs. Nevin Kilpatrick, Denver
Treasurer: Norma Johannis, Denver

GEORGIA PUBLIC HEALTH ASSOCIATION

The 20th annual meeting of the Georgia Public Health Association was held in Savannah, May 2–4, under the Presidency of Dr. C. A. Henderson, Health Officer of Savannah. Annie Taylor of the State Department of Health was Secretary.

Almost 500 persons registered for the three day meeting during which a series of general and special sessions were planned, representing a wide variety of public health interests. Special symposia

were held on stream pollution control, on medical nutrition surveys, on community organization, and on housing.

Out-of-state participants on the program were Russell M. Wilder, M.D., of the Mayo Clinic, Rochester, Minn.; Charles L. Williams, Sr., M.D., U. S. Public Health Service, Washington, D. C.; Professor and Mrs. C.-E. A. Winslow, New Haven, Conn.; Ruth E. Grout, Ph.D., University of Minnesota, Minn.; Warren T. Davis, Jr., U. S. Public Health Service, New Orleans, La.; M. R. Kinde, M.D., W. K. Kellogg Foundation, Battle Creek, Mich.; Emilie G. Sargent, R.N., Detroit Visiting Nurse Association, Detroit, Mich.; William P. Richardson, M.D., University of North Carolina, Chapel Hill, N. C.; and Reginald M. Atwater, M.D., A.P.H.A., New York.

New officers were elected as follows:

President: James A. Thrash, M.D.
President-Elect: Charles D. Bowdoin, M.D.
Vice-President: Bessie F. Swan, R.N.
Secretary: C. S. Buchanan
Treasurer: Ernest B. Davis

NEW YORK STATE HOLDS 45TH ANNUAL HEALTH CONFERENCE

The 45th Annual Health Conference under the auspices of the New York State Department of Health was held at Lake Placid, N. Y., June 20–23. There was a large attendance representing health officers, public health nurses, sanitation personnel, school physicians, and others. Herman E. Hilleboe, M.D., M.P.H., Commissioner of Health, was Chairman.

Among the special sessions of the program were recent advances in the control of communicable diseases, how to get community participation for better health services, working for the establishment of basic local health services, water pollution control, nutrition in relation to dental health, international classification of diseases, injuries and causes of death, human relations in public health, local health records and their uses in administration and research, and other topics.

Out-of-State speakers included W. Palmer Dearing, M.D., Deputy Surgeon General, U. S. Public Health Service, Washington; Leroy E. Burney, M.D., Commissioner of the Indiana State Health Department, Indianapolis; A. L. Hoyne, M.D., Medical Superintendent of the Contagious Disease Hospital in Chicago; Emanuel B. Schoenbach, M.D., Department of Preventive Medicine, Johns Hopkins University, Baltimore; Joseph A. Bell, M.D., National Institutes of Health, Bethesda; Margaret Arnstein, R.N., M.P.H., Associate Director, Division of Nursing, U. S. Public Health Service, Washington; John W. Knutson, D.D.S., Chief, Dental Public Health Section, U. S. Public Health Service, Washington; Neal Chilton, D.D.S., Acting Chief, Section on Dental Diseases, New Jersey State Department of Health, Trenton; Adelia M. Beeuwkes, Assistant Professor, School of Public Health, University of Michigan, Ann Arbor; W. Thurber Fales, D.Sc., City Health Department, Baltimore, Md.; Thomas Parran, M.D., Dean, Graduate School of Public Health, Pittsburgh, Pa.; and Evelyn Flook, Chief of Records and Reports Section, Bureau of State Services, U. S. Public Health Service, Washington.

DDT INCORPORATED IN PAINT

Successful incorporation of DDT in oil-base paints, both flat and gloss, was reported by W. K. Lewis, Jr., and associates, before a meeting of the South Carolina Academy of Science in April, 1949. Tests of the toxicity of the paints carried on over a period of 3 years at the Crop Protection Institute, Durham, N. H., showed a high degree of effectiveness in paints applied at the beginning of the test period, according to the report. According to the authors, use of paint containing DDT should result

in cheaper control of insects plus less danger of possible harmful effects of DDT to man.

WESTERN BRANCH AMERICAN PUBLIC HEALTH ASSOCIATION

The 1949 meeting of the Western Branch American Public Health Association was held in Los Angeles May 30–June 1, under the presidency of George M. Uhl, M.D., M.P.H., the Health Officer of Los Angeles.

Nearly 1,200 persons registered during the three days and participated actively in programs built around dental health, poliomyelitis, Q fever, viral diseases, public medical care, atmospheric pollution, mental illness, the public health laboratory, public health nursing, pending federal legislation, geriatrics, tuberculosis control, training of public health personnel and sanitation. A large exhibit was a feature of the meeting and included the "Take an Examination" booth of the A.P.H.A. Merit System Service.

Among the participants from outside the area of the Western Branch were Ellis Tisdale, Engineer Director, U. S. Public Health Service, Atlanta, Ga.; Ernest B. Howard, M.D., American Medical Association, Chicago; R. A. Jensen, M.D., Minneapolis, Minn.; K. F. Maxcy, M.D., Johns Hopkins University, Baltimore; Edward G. McGavran, M.D., School of Public Health, Chapel Hill, N. C.; Seward E. Miller, M.D., U. S. Public Health Service, Atlanta, Ga.; Russell I. Pierce, M.D., U. S. Public Health Service, Washington, D. C.; B. Lees Read, Guy's Hospital, London, England; and Reginald M. Atwater, M.D., American Public Health Association, New York.

The Program Committee was under the chairmanship of Charles M. Carpenter, M.D., Los Angeles. Walter S. Mangold was Secretary and Treasurer.

The new officers of the Western Branch include the following:

President—Arthur L. Ringle, M.D., Asst. Chief, Tuberculosis Section, Area Office, Veterans Administration, San Francisco, Calif.

President-Elect—Wilton L. Halverson, M.D., State Director of Public Health, San Francisco, Calif.

1st Vice-President—L. S. Goerke, M.D., Director, Bureau of Medical Services, Los Angeles City Health Department, Los Angeles, Calif.

2nd Vice-President—Portia Irick, R.N., Director, Public Health Nursing, State Health Department, Santa Fe, N. M.

3rd Vice-President—Robert A. Downs, D.D.S., Director of Dental Health, State Department of Health, Denver, Colo.

Secretary-Treasurer—Walter S. Mangold, Associate Professor of Public Health, University of California, Berkeley, Calif.

UNIVERSITY OF PITTSBURGH FACULTY APPOINTMENTS

Thomas Parran, M.D., Dean of the University of Pittsburgh Graduate School of Public Health, has announced the following faculty appointments:

Antonio Ciocco, D.Sc., Deputy Chief, Division of Public Health Methods, U. S. Public Health Service—Head, Department of Biostatistics.

James A. Crabtree, M.D., Dr.P.H., Director, Medical Division, National Security Resources Board—Head, Department of Public Health Practice.

Paul M. Densen, D.Sc., Chief, Medical Research Statistics Division, Department of Medicine and Surgery, Veterans Administration—Associate Professor of Biostatistics.

Theodore F. Hatch, Resident Director, Industrial Hygiene Foundation, Pittsburgh—Professor of Industrial Health Engineering.

TWO NEW LASKER AWARDS

The Albert and Mary Lasker Foundation recently announced two new awards in its purpose "to acknowledge and publicly recognize efforts made by individuals or groups to combat the major causes of disease and death." The new awards for distinguished journalism will be given to writers of articles or a series of articles published in (1) an American daily or weekly newspaper, and (2) an American magazine, pertaining to the improvement of health or the prolongation of life through

medical research or other relevant means.

The awards of $500 each and a statuette replica of the Winged Victory of Samothrace, are being administered by the Nieman Foundation for Journalism, 44 Holyoke House, Cambridge 38, Mass., to whom all inquiries and requests for entry blanks should be made. Entries must be mailed not later than February 1, 1950, and must carry a 1949 publication date. Articles published in commercial house organs, technical medical and other limited professional journals are ineligible.

TREND OR ISOLATED INSTANCE?

In its May issue, the last before giving up publication because of "budget tightening," the *Health Commentator* of the Washington State Department of Health, reports a 16 per cent reduction in operating funds available to the department. Among the activities curtailed as a result is the closing on June 10 of the rapid-treatment center for syphilis, thus returning the treatment of low-income syphilis patients to local health departments. The state's mobile x-ray unit will be discontinued by the end of 1949; funds for the handicapped children's program have been cut by 17 per cent; more than two dozen state department workers have been dismissed; new sponsorship is being sought for a member of activities—the Seattle Guidance Clinic, the health film library, the tumor registry, among them.

PERSONALS

LEWIS W. ANDREWS, M.P.H., for the past 3 years, Director of Community Health Education, Kansas State Board of Health, has resigned to become director of public health education, Wichita-Sedgwick County Public Health Department.

REGINALD M. ATWATER, M.D., DR. P.H.,* of New York received the honorary degree of Doctor of Laws at the June Commencement of Colorado College, Colorado Springs, where he gave the commencement address.

ROBERT L. BOGLE is now sanitarian of Woodruff, Cross, and Prairie Counties, Arkansas, with headquarters at Augusta.

BERNARD M. BLUM, M.D., M.P.H.,* who has been District Health Officer of the Washington Heights-Riverside Districts, New York City Department of Health, and Assistant Professor in the Columbia University School of Public Health since 1941 has resigned to become Medical Director of the Fife-Hamill Memorial Health Center, Philadelphia, and Professor of Preventive Medicine and Public Health, Jefferson Medical College.

MARTHA BRANSCOMBE, PH.D., who has been Assistant Chief of the U. S. Children's Bureau, Washington, has resigned to join the staff of the Elizabeth McCormick Memorial Fund, Chicago, succeeding MARY MURPHY, deceased.

GLIDDEN L. BROOKS, M.D.,† has been appointed an Associate Director of the American Academy of Pediatrics' Committee for the Improvement of Child Health, Philadelphia. He will aid in developing an action program for the nation-wide improvement of child health.

DAVID D. CARR, M.D., M.P.H.,* has resigned his position as Director of the Topeka City-Shawnee County Health Department to accept a position as County Health Officer of Las Vegas, Nev.

HOLLAND M. CARTER, M.D.,† Director of the Madison and Taylor Counties Health unit in Florida has accepted a position with the South Carolina State Board of Health.

ALTA ELIZABETH DINES,* recently retired as Director of the Department

* Fellow A.P.H.A.
† Member A.P.H.A.

of Educational Nursing of the Community Service Society, New York, and MARY M. ROBERTS, recently retired as editor of the *American Journal of Nursing*, on June 28 were awarded the Florence Nightingale Medal this year for "distinguished service and great devotion to the sick and wounded in time of war and in time of peace," at the American Red Cross national convention in Atlantic City.

CLIFTON O. DUMMETT, D.D.S.,† Professor of Dentistry and Dean of the School of Dentistry, Meharry Medical College, Nashville, has been appointed Chief of the Dental Service at the Tuskegee, Ala., Veterans Administration Hospital effective August 1.

ALEXANDER M. EARLE, M.D., formerly with the Pediatric Service of Bellevue Hospital, New York, is now pediatrician of the Virgin Islands Department of Health.

C. A. ELVEHJEM, PH.D., of the University of Wisconsin, at the recent annual meeting of the National Live Stock and Meat Board, was presented an award in recognition of his contribution to the science of biochemistry and his leadership in the field of nutrition.

JOHN E. FARRELL, SC.D.,* Executive Secretary of the Providence Medical Association, the Rhode Island Medical Society, and the Council of the New England State Medical Societies, was reëlected the secretary-treasurer of the Conference of Presidents and Other Officers of State Medical Associations at the 5th annual meeting of that organization at Atlantic City, on June 5.

FLOYD M. FELDMANN, M.D., DR.P.H.,* present Medical Director, Central Coordination and Analysis Office and Executive Secretary, Tuberculosis Study Section, U. S. Public Health Service, has joined the staff of the National Tuberculosis Association as Assistant to the Managing Director, JAMES E. PERKINS, M.D.*

WILLIAM H. GAUB, PH.D.,* has resigned as head of the Laboratory Section, Washington State Health Department, to be in charge of the U. S. Public Health Service Bacteriological and Parasitological Laboratories at Anchorage, Alaska. His duties will be assumed by W. R. BIEDT, M.D.,* Epidemiologist of the department.

JAMES B. HALL, M.D., who has just obtained his degree of Master of Public Health at the University of California, has succeeded H. A. SAUBERLI, M.D.,† as Director of the Leon County Health Department, Florida.

JOHN W. HART,† Director of the new products division, Sterling-Winthrop Research Institute, has been named a commander of the Order of Carlos Finlay by decree of President Prio of Cuba and action by the Cuban Congress. He will be presented the grand cross of the Order by the Cuban President in a presentation ceremony in Havana on December 3.

JOHN M. HENDERSON,* Professor of Sanitary Science, Columbia University School of Public Health, is on a 3 month assignment as consultant in malaria control with the World Health Organization, assigned to the training center in malaria control for southeast Asia, at New Delhi, India.

RAFAEL HERNANDEZ, PH.D., a former Meharry Medical School professor, has been added to the Virgin Islands Health Department staff, as a psychiatrist.

JOHN T. HERRON * has returned from the Harvard School of Public Health, with the Degree of Master of Public Health, to his duties as Assistant State Health Officer and Director of the Bureau of Local Health Services, Arkansas State Board of Health.

LOUISE JAMES,† who has been taking

* Fellow A.P.H.A.
† Member A.P.H.A.

advance work in pediatric nursing, in June resumed her duties as Maternal and Child Health Consultant in the Public Health Nursing Service, Arkansas State Health Department.

RALPH J. JOHNSON,† Sanitary Engineer, U. S. Public Health Service, and Consultant of the Service in the Hygiene of Housing has been appointed a member of the Joint Committee on Housing and Health of the National Organization of Housing Officials and the American Public Health Association of which BLEECKER MARQUETTE * of Cincinnati, Ohio, is Chairman.

EMANUEL KAPLAN, Sc.D.,* Chief, Division of Chemistry Bureau of Laboratories, Baltimore City Health Department, was recently elected President of the Central Atlantic States Association of Food and Drug Officials for the year 1949–1950.

GLEN KELLOGG, who has completed his work for a Degree of Master of Public Health in Sanitation at the University of North Carolina School of Public Health, has returned to the Arkansas Health Department as Sanitary Engineer in the Bureau of Sanitary Engineering.

LAWRENCE KOLB, M.D., has resigned as Director of Research Projects for the National Institute of Mental Health to become Consultant in Psychiatry at the Mayo Clinic, Rochester, Minn. JOHN EBERHART, M.D., Chief Psychologist of the Training and Standards Branch, succeeds Dr. Kolb.

H. M. C. LUYKX. D.Sc.,* Associate Professor of Preventive Medicine, New York University College of Medicine, has a 2 year appointment as Biometrician for the Atomic Bomb Casualty Commission in Japan, stationed in Kure. The Commission sponsored by the Atomic Energy Commission operates under the Committee on Atomic Casualties of the National Research Council.

ETHEL AUSTIN MARTIN,* Director of Nutrition Service, National Dairy Council, Chicago, is among the United States delegation to the 12th International Dairy Congress, being held at Stockholm, Sweden, August 15–19.

MARY ELIZABETH MCCONNELL, formerly connected with the Rochester, Minn., Health Department, working with Drs. Aldrich and Spock in the child health project, on May 15 became supervising nurse of the Division of Public Health Nursing, Ulster County (New York) Health Department.

MABEL OLSON, for the past 4 years public health nursing consultant in maternal and child health, Arizona State Department of Health, has resigned to return to her home in Cedar, Minn.

CLARENCE OVERCASH,† who received a Master of Public Health in Industrial Engineering at Michigan University has returned to his position as industrial engineer in the Industrial Hygiene Division, Arkansas State Health Department.

JAMES ELMER PETERMAN, M.D.,† has been appointed Assistant Health Officer in the Baltimore (Maryland) County Health Department succeeding ELIZABETH L. LANGELUTTIG, M.D., resigned. Dr. Peterman served for 5 years in the U. S. Army, 2 of them in the Division of Medical Statistics, Office of the Surgeon General, and nearly 2 in the Preventive Medicine Division, Office of the Chief Surgeon, Southwest Pacific Theatre.

ELIZABETH REED, R.N.,† who served as Acting Director of the Division for several months prior to completing work for the bachelor of science degree at Columbia University, has been appointed Director, Division of Health Information, Florida State Board of Health.

H. A. SAUBERLI, M.D., M.P.H.,† who has been Health Officer of Leon County, Tallahassee, Fla., since 1947,

has resigned to become Director of Local Health Services in the Colorado State Department of Public Health, Denver.

WILLIAM H. SHEETS, is the new field agent in the Bureau of Vital Statistics, Arkansas State Health Department.

JAMES C. THOMSON, PH.D.,† Professor of Nutrition, Nanking University, China, who for the past 2 years has been Visiting Professor of Nutrition in the West China Union University, Chengtu, is now lecturing at the Dr. Sun Yat-Sen Memorial Medical College, Lingnan University, Canton, in nutrition and during the summer will give a similar course at the Cheeloo Medical College, now temporarily located in Foochow.

WINSTON H. TUCKER, M.D.,* Health Commissioner, Evanston, received double honors at the recent annual meeting of the Illinois Public Health Association. He was elected President of the Illinois Association of Medical Health Officers, and made President-elect of the Illinois Public Health Association.

E. GIFFORD UPJOHN, M.D.,† Vice President, the Upjohn Company, Kalamazoo, Mich., was elected President of the National Vitamin Foundation for 1949 at the annual meeting of foundation members in New York, succeeding BASIL O'CONNOR,† President of the American Red Cross, who was named to the newly created position of honorary chairman of the Board of Governors.

HARRY F. WILSON, M.D.,* Director of the Division of Industrial Health, South Carolina State Board of Health, has been made Director of the Division of Laboratories as well.

THE FOLLOWING ARE NEW COUNTY HEALTH OFFICERS IN FLORIDA:

JOSEPH M. BISTOWICH, M.D.,† Leon County.

ROBERT RUSSELL, M.D.,† Jefferson County

JAMES L. WARDLAW, M.D., Madison-Taylor Counties.

MARYLAND PUBLIC HEALTH:

W. ROSS CAMERON, M.D.,* has been appointed Director of the new heart program which will be financed by a grant from the Public Health Service under the National Heart Act.

CARROLL E. L. EASTERDAY, M.D., was appointed Deputy State and County Health Officer of Frederick County, effective May 1, 1949.

LUCILLE A. WALLIS,† formerly public health nursing consultant in venereal diseases, became Assistant Chief of the Division of Public Health Nursing on April 1.

DEATHS

WILLIAM B. BORDEN, M.D., DR.P.H. (Col. (MC) Retd.),† Assistant Superintendent, Pinehurst State School, Wayne, Pa., died May 15, 1949 (Vital Statistics Section).

WILLIAM J. BUTLER, D.V.S.,† State Veterinary Surgeon and Executive Officer, Montana Livestock Sanitary Board, Helena (Unaffiliated).

W. E. DOYLE, M.D.,* Medical Director in the U. S. Public Health Service, died suddenly April 11. He had been stationed at the medical center of the National Cancer Institute since December 1, 1948 (Industrial Hygiene Section).

EDWIN BRUCE GODFREY, M.D.,† Director, Webster Parish Health Unit, Minden, La. (Health Officers Section).

WILLIAM F. HIGBY,* Executive Secretary, California Tuberculosis and Health Association, San Francisco, died June 24 (Public Health Education Section).

* Fellow A.P.H.A.
† Member A.P.H.A.

DWIGHT FENN JOHNSON, M.D., health officer of the town of Arcadia, Wayne County, N. Y., since 1912, died recently at the age of 70.

ERNEST C. MCCULLOCH, D.V.M., PH.D.,† Professor of Bacteriology, State College of Washington, Pullman, Wash. (Laboratory Section).

SIR GEORGE NEWMAN,* Ministry of Health, Whitehall, S.W.I., London, England (Unaffiliated).

RAY LYMAN WILBUR, M.D., formerly Fellow of the Association died June 26 at the age of 74.

CONFERENCES AND DATES

American Cancer Society. Park Sheraton Hotel, New York, N. Y. October 27–30.

American Congress of Physical Medicine. Netherland Plaza Hotel, Cincinnati, Ohio. September 6–10.

American Hospital Association. 51st Annual Convention. Hotel Statler, Cleveland, Ohio. September 26–29.

American Occupational Therapy Association. Book-Cadillac Hotel, Detroit, Mich. August 20–27.

American Public Health Association—77th Annual Meeting. New York, N. Y. October 24–28.

American Society of Tropical Medicine, The American Academy of Tropical Medicine, and the National Malaria Society. Memphis, Tenn. November 6–9.

American Water Works Association:
- New York Section. Otesaga Hotel, Cooperstown, N. Y. September 6–7.
- Minnesota Section. Minneapolis, Minn. September 8–9.
- Pennsylvania Section. Penn-Harris Hotel, Harrisburg, Pa. September 14–16.
- Rocky Mountain Section. Acacia Hotel, Colorado Springs, Colo. September 22–23.
- Missouri Section. Connor Hotel, Joplin, Mo. September 25–27.
- Michigan Section. Park Place Hotel, Traverse City, Mich. September 28–30.

First International Congress of Biochemistry. Cambridge, England. August 19–25.

Florida Public Health Association. George Washington Hotel, West Palm Beach, Fla. October 6–8.

Illuminating Engineering Society. French Lick, Ind. September 19–23.

International Association of Milk and Food Sanitarians. Weschler-Wallick Hotel, Columbus, Ohio. October 20–22.

Michigan Public Health Association. Hotel Statler, Detroit, Mich. November 9–11.

Minnesota Public Health Conference. Nicollet Hotel, Minneapolis, Minn. September 30.

National Association of Sanitarians. Biltmore Hotel, Los Angeles, Calif. August 15–18.

National Safety Congress and Exposition (National Safety Council). Buccaneer Hotel, Galveston, Tex. October 24–26.

National Society for Crippled Children and Adults. Commodore Hotel, New York, N. Y. November 7–9.

New England Health Institute. University of Vermont, Burlington, Vt. August 30–September 1.

II Pan American Congress on Pediatrics. Mexico, D.F. November 2–5.

Pennsylvania Association of Clinical Laboratories. Harrisburg, Pa. November 2.

Planned Parenthood Federation of America, Inc. Roosevelt Hotel, New York, N. Y. October 25–27.

Third Inter-American Congress of Radiology, Santiago, Chile. November 11–17.

Washington State Public Health Association. Spokane, Wash. September 19–20.

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35 YEAR INDEX

OF

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Control of Communicable Diseases, The. 6th ed., 1945. Size 4¼" x 7¼". 149 pp.	.35
Diagnostic Procedures and Reagents. Technics for the Laboratory Diagnosis and Control of the Communicable Diseases. 2nd ed., 1945	$4.00
Diagnostic Procedures for Virus and Rickettsial Diseases. 1948. 347 pp.	$4.00
Directory of Public Health Statisticians, 4th ed., Oct. 1948 (free to members of the Statistics Section)	$1.00
Membership Directory. 1946. (Free to A.P.H.A. members)	$5.00
Methods for Determining Lead in Air and in Biological Materials. 1944. 41 pp.	.50
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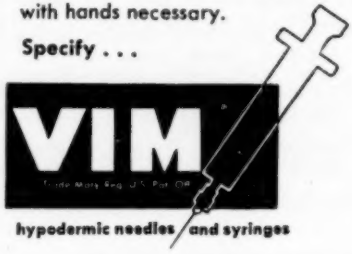

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1. Kunde, M. M.: The Role of Hormones in the Treatment of Obesity, Ann. Int. Med. 28:971 (May) 1948.
2. Gastineau, C. F.; Rynearson, E. H., and Irmisch, A. K.: Treatment of the Fat and Lean, J.A.M.A. 139:86 (Jan. 8) 1949.
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